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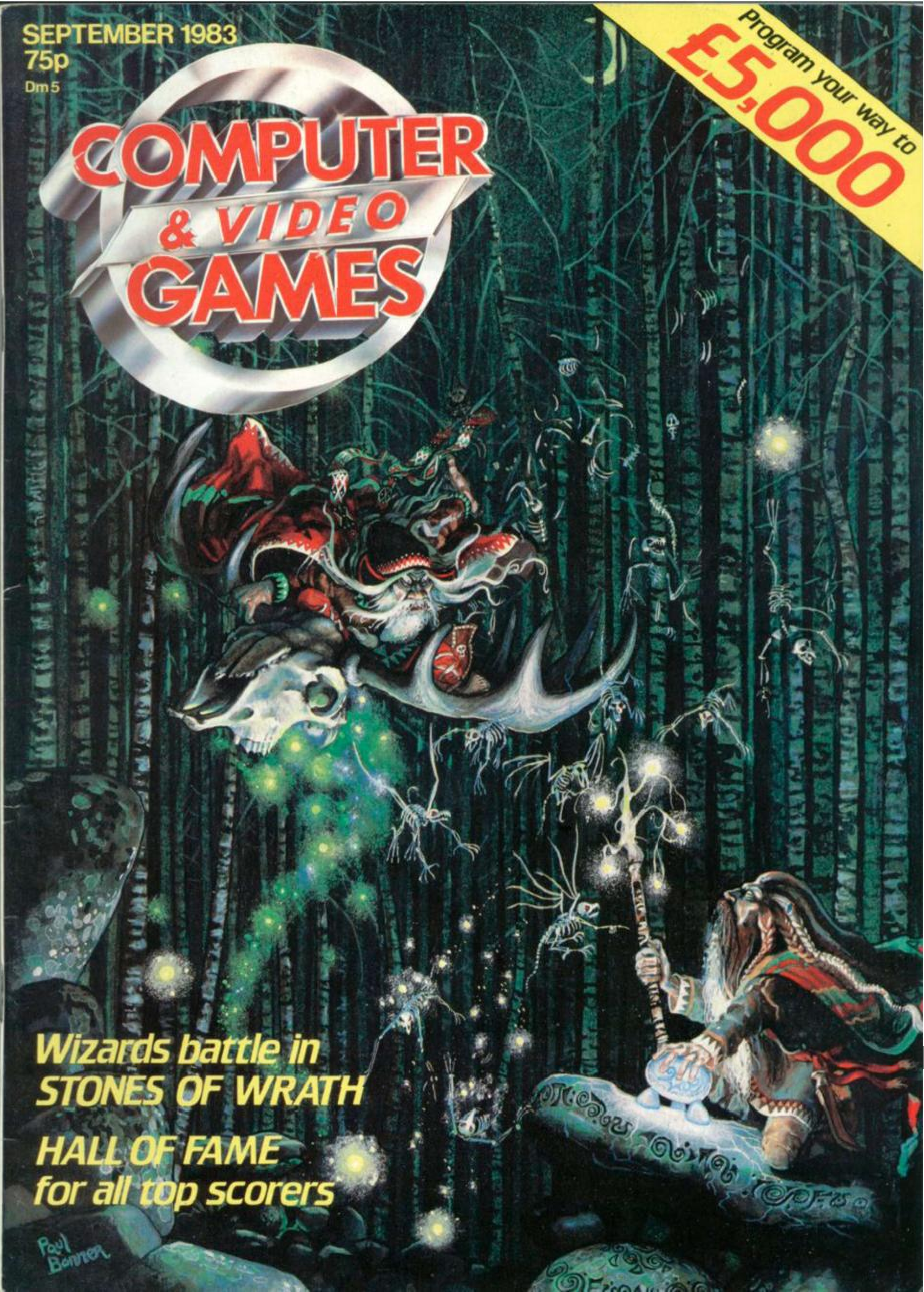

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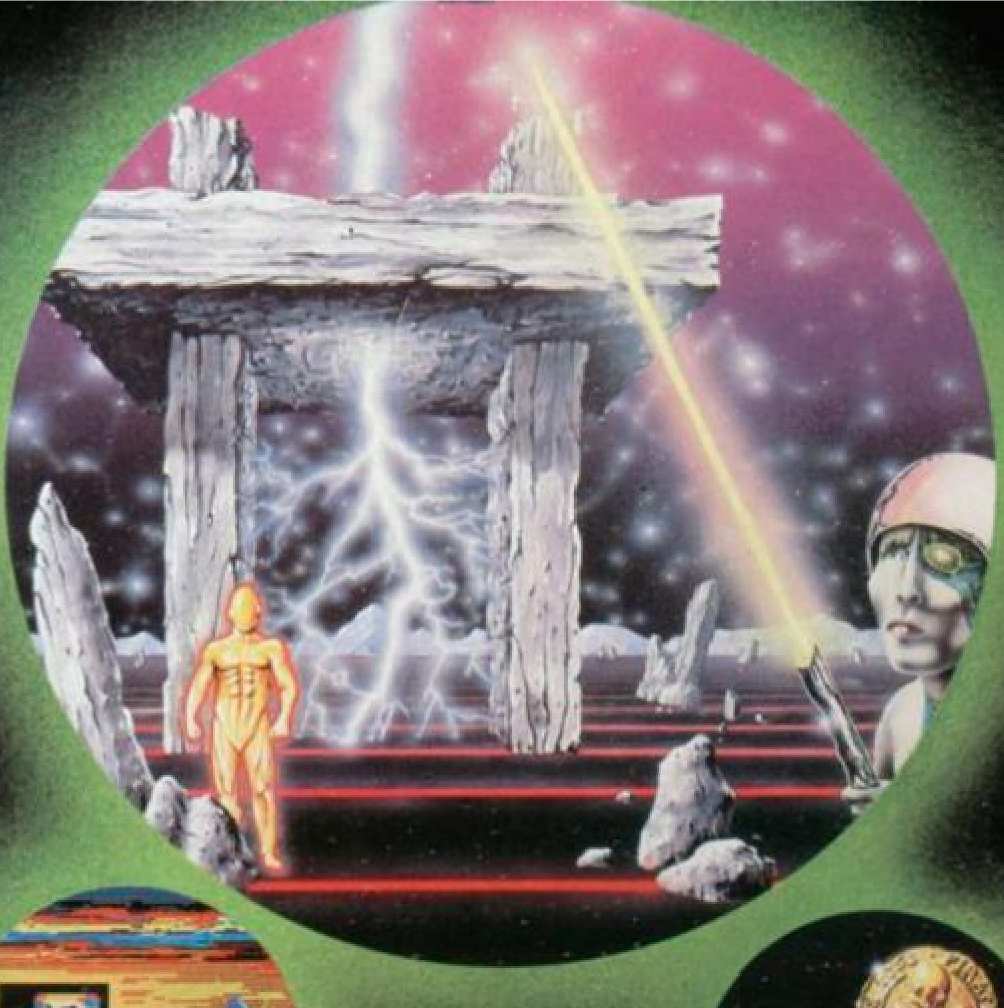

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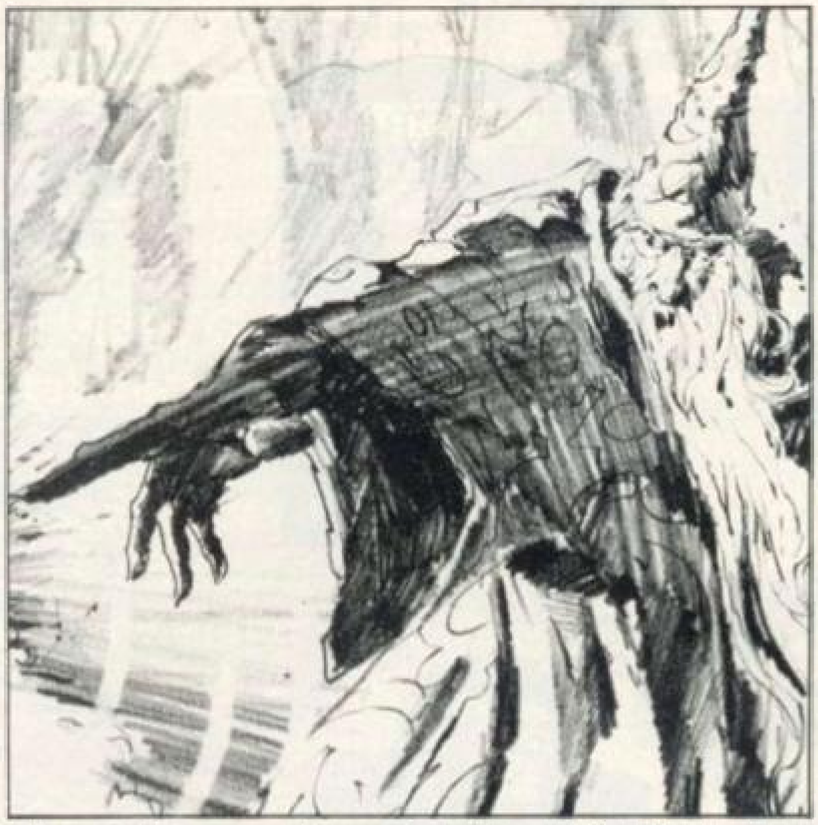

Even as he prepared to conjure the swirling Vortex that would begin the weakening, a low menacing thunder rumbled from the East and there, high above the trees, was the swiftly approaching demon!

Hall of Fame

If you want to take on the world at your favourite computer game then we're offering you a chance to start by proving yourself the best around the UK.

Our Hall of Fame section gives you the chance to enter your best score for one of nine popular home computer games and see how it compares to the opposition.

All these games have been tested by *C&VG* staff and approved and we hope that the Hall of Fame will increase the excitement they generate. Read all about it on page 37.

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Cover illustration: **Paul Bonner** Next issue: **September 16th**

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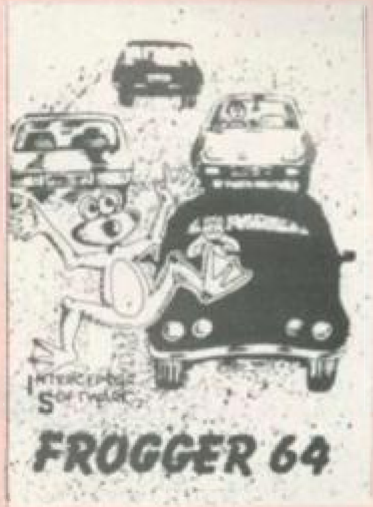
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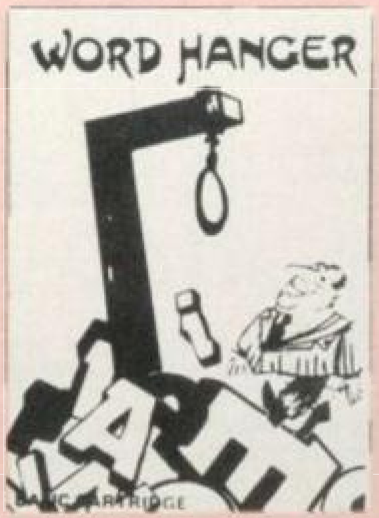
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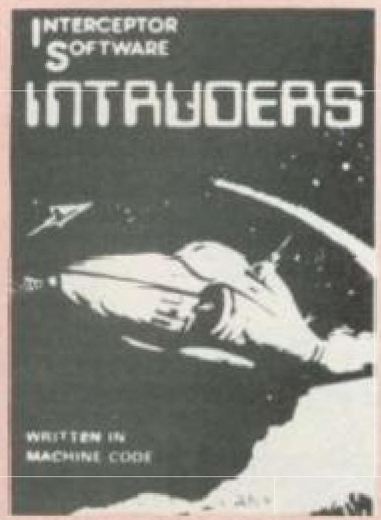
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FIND OUT MORE IN THIS ISSUE.

SEE AD ON PAGE 52-53

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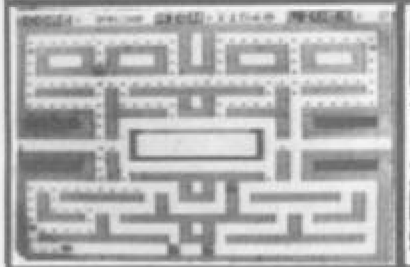

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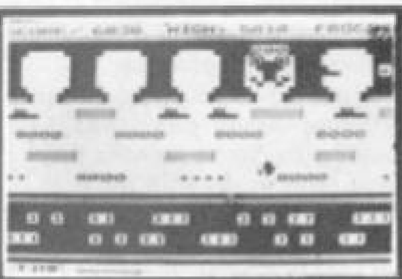

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MISSION POSSIBLE!

Dear Sir,
I'm a Genius! I must be for I have just solved the Commodore Mission Impossible Adventure game in under two hours!

What a waste of money! According to the advertising blurb, and I quote — "It is, however, recommended that this mission not be undertaken by a novice Adventurer" — such as I.

Naturally, I feel very disappointed with the simplicity of the Adventure. Surely they should put age limits on games such as this? I would recommend about 10 years as maximum for this one.

B. A. Furnell,
Coedpoeth,
Clwyd.

REVIEWER RAPPED!

Dear Sir,
Your reviewer of Escape from Orion for the BBC micro (*C&VG*, July) has got his facts wrong. The review is based on two specific criticisms of the program:

"When you have completed screen 1 you do not automatically go on to screen two, but must go back to the menu." An important feature of the program is the ability to choose just which screens you play.

If you choose only screen 1, then it cycles round screen one until you change your choice, but if you choose a combination of screens (and default is all four) it cycles through screens 1, 2, 3 and 4, and then back to 1 automatically, without any intervention.

"You can't go up the ladders but can only descend to the bottom of the screen." Rubbish! The reviewer must have been pressing the wrong key!

The other criticism of the program was that the fast missiles are easy to dodge. As you complete the screens, they get harder, and another feature of the program is the initial difficulty level selection. I suspect your reviewer only tried level 1. If he'd started at level 5 and worked up to level 9 he might have found it harder!

Not everybody who buys games is an expert, and Escape from Orion tries to cater for all skills.

I hope you'll be able to have another look at Escape from Orion, and change your opinion of it.

Paul Shave,
Hopesoft,
Newbury,
Berks.

INTELLIGENT ANSWERS?

Dear Sir,
Enjoyed the supplement on video games, in your June issue. Unfortunately when checking out my local shops in Milton Keynes and Aylesbury, I got the usual open-mouthed, bemused stare!?

It's always : "Yes, we've got the games consol, sir." "Er, well, no, we actually don't have any cartridges in stock" or "Yes, sir, we've got two . . ." usually both dog earred and buried under at least a dozen Atari cartridges of all the latest games.

Is it just me who gets this problem?

David Jones,
Buckingham,
Bucks.

APOLOGIES TO KEVIN

Dear Sir,
In your July issue, I was delighted to see that you had published my game Nivek's Invaders for the Atari 400. However I was not so pleased to see someone elses name at the top of the page!

Could you please tell your readers that Nivek's Invaders was my invention.

Kevin Goulding,
Hull.

Editor's reply: Whoops! Sorry Kevin.

TRIALS OF VIRGIN

Dear Sir,
I was most upset to read your review of *Sheepwalk*. However, I don't want to carp about our bad reviews — after all, everyone is entitled to their own opinion and I don't feel defensive about the quality of our software.

What I do resent, however, is clever-clever journalists making snide comments that have little to do with the subject that they are supposed to be addressing.

I would like to reassure you that Virgin Games is a software house, albeit a new one, though I don't know when that was decreed to be a bad thing. We intend to still be around in a couple of years time when an awful lot of others, both big and small, could well have either taken the money, or losses, and run.

I am sorry that your (un-named) reviewer didn't enjoy *Sheepwalk* (commended elsewhere in the same issue of *Computer and Video Games* for its originality!) but it does not really matter what he, or I, think of it as it is the customers who will decide what is, or isn't, good — voting with their hard-earned cash — and Sheepwalk is getting a lot of votes. So up yours!

Nick Alexander,
Virgin Games,
London.

DEFENDING THE ATARI

Dear Sir,
With reference to *Defender Defended*, Mailbag, July issue. I am in total agreement with Paul Ippaso. The Atari 400/800 computers have far superior graphics to the BBC — not only on Defender. You should take a look at Necromancer by Synapse or Astro Chase from First Star.

As for playing Planetoids with the keyboard, this only brings me closer to my Atari.

Secondly, re Attack on Atari same issue, I think Deke Roberts would be the first to complain if he had designed some top quality and top selling cartridges and some other company came along and attempted to steal them.

If he can't see why Atari "fling writs" around like this he should just look at what the video film pirates are doing to the film industry. If he still can't see, then all I can suggest is that he continues to buy inferior Intellivision cartridges.

Finally, re Overpriced Cartridges, same issue. Just to prove I am not totally Atari biased, I agree with Eddie Mitchell.

Atari software is expensive, but I feel that in time it will become cheaper as the current boom in home computers subsides to a steady level.

James Tolan,
Rochdale,
Lancs.

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MAILBAG

CASSETTE CONFUSION

Dear Sir,
I have been the owner of a ZX81 for about four months and have an annoying problem.

When I load a program from my tapes eg. Games 1, Games 2, Education 1, I find that side A of all three tapes load perfectly. But when I try to load on the B-side absolutely nothing happens. All I get are the lines that show the program is loading. Instead of stopping with o/o in the corner of the screen, it (the screen) turns a grey colour.

I have tried loading at different volume levels and checked that all the leads are secure and in the right places, etc., all to no avail. Could you try to explain why my tapes should load on one side and not the other, I can understand it being on one tape but surely not on all three.

Christopher Giles,
Headington,
Oxford.

Editor's reply: I can only assume that the tapes you have are recorded on one side only. This is fairly standard practice for most manufacturers. Sinclair tapes are some of the few that record on both sides.

Or are you using a stereo recorder? This could cause some problems. What do your audio tapes sound like? Are they more fuzzy on one side than the other? If so then get your tape heads realigned.

WE HAVE THE TECHNOLOGY

Dear Sir,
I have had great fun with your *Seventh Empire* even if I did totally misunderstand the process of making any points, (let alone trying to beat the top scores) and my favourite game is Atari's *Star Raiders.*

Recently a thought occurred to me; that with the state of technology, it should now be possible to mix both these great games together. This I will leave to you!

By linking players to a central computer via telephone, (using modems) this would bypass the need for written orders.

I think it would be nice to play against other players in this way, as you would not have to wait weeks to find out if you have won, also it would be nice if each player designated their own craft, (a 16 × 16 pixel should do) this would enable players to identify each other — so you can tell who you just wiped out.

K. P. Durnall,
Walsall,
West Midlands.

Editors reply: The technology is there Mr Durnall and the game itself is not far away. Seventh Empire author Mike Singleton will soon be unleashing a role-playing game on the Micronet system which will allow instant turnaround of moves.

While in the US, one arcade has linked up eight terminals playing Star Trek so you can go in, pay your quarter and either take on the computer or interact with the other players.

SEARCH FOR SOFTWARE

Dear Sir,
The article by Ron Potkin in your June edition has made me feel that maybe I am missing out on something. He talks about Dragon owners looking longingly at the wealth of software available for the TRS 80 Colour Computer.

As I have owned a CoCo for some six months now, I find this very hard to believe, in fact I would say that in reality the exact opposite is closer to the truth. To prove my point, the same edition in which the article is to be found has no less than 13 companies advertising software for the Dragon and only two for the CoCo!

So maybe Ron would like to write another article to explain where this wealth of CoCo software is, and also give us a few tips on converting Dragon software to run on a CoCo.

H. F. Ball,
Gosport,
Hants.

SEARCH FOR CHECK MATE

Dear Sir,
I have been reading your November issue with interest. May I ask you for your advice please?

I am looking for a computer which will allow me to play Chess, but not necessarily along the lines determined by the software. All I want is to set up positions and continue with the game, and, most important, to feed rather a large number of opening moves into the computer which will show on the screen. Is there such an animal?

Rudolph Sabor,
Petts Wood,
Kent.

Editor's reply: Not really, Rudolph. Any simple chess program, like the early Sargon versions written in Basic, *could* be adapted to your needs.

CHOOSING A MICRO

Dear Sir,
As I want to buy a home computer in the near future, I'm always looking for descriptions of hard and software in computer magazines. Yours is the best!

But I don't know which home computer willl be the best one for me to buy. It shouldn't only be for playing games. I also want to use it to help me in my job.

My two questions are: (and nobody has been able to answer them yet) What is the most suitable home computer for me — Atari 400, Sinclair ZX81, TI99/4a or Vic-20?

In Germany, there isn't as much software available as there is in England! Is it possible for me to run software I bought in England on my Sinclair ZX81 or Vic-20 I may buy in Germany? Can I use the programs you offer in your magazine for a German sold home computer (ie. ZX81 or Vic-20)? I don't know where I can get a professional answer.

As I'm still a student, I don't have enough money to buy the Atari 800 (my favourite machine) and as I want to get "a lot of K for my small moneybag, I have to ask a lot of questions.

Bernd Scholz,
Hamburg,
W. Germany.

Editor's reply: It's difficult to say which machine is best supported in Germany, Bernd. It really is a choice between the Vic-20 and the TI99/4a. The latter has the best graphics — but not so much software. Software bought in the UK can be used in Germany.

SELLING SOFTWARE

Dear Sir,
A couple of friends and myself are interested in starting a small software firm. We hope to produce games and more practical software on cassettes (and possibly disc).

I would like to know the rules and regulations for starting a small firm, or who should I contact for information?

Michael Coker,
Fareham,
Hants.

Editor's reply: The main problem is keeping accounts. If you advertise the tax man will want to keep tabs on you! It is not really necessary to form a company at the early stages — but a form of agreement between the partners as to their liabilities/duties, etc., would be useful. Any small firms advisory council (address in telephone directory) will give advice.

COMPETITION COMPETITION COMPET

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You've always thought that your programming skills could earn you a lot of money. Come on, don't be modest, you know you have! All you need is a bit of luck and a really exciting program — and an entry form for Computer and Video Games' £5,000 Computer Program Competition . . .

The prize money is on offer from Calisto Software of Birmingham, who want to uncover Britain's brightest programming talents. Calisto are keen to expand the number of home computers they can offer software for, and encourage home-grown talent instead of simply shipping games in from the States.

The experts reckon it takes three months to write a good games program — so that's just what you've got. Your program must be at the Calisto office not later than October 16th.

If you are going to polish up one of your previous efforts, then why not send it quickly and get started on another program. You can enter as many programs as you like as long as each comes with an entry form cut from the magazine — and there will be another form in our October issue.

There's a chance for everyone to be a winner in this competition as Calisto will be giving out software contracts to the designers of games they want to market.

So even if you don't end up £5,000 richer straight away, you could still find the royalties rolling in if you become part of Calisto's team of software writers. And that may turn out to be worth even more than £5,000 for you.

You can enter on any popular microcomputer. All cassettes will be tested by Calisto's team of judges. If your offering is picked as the winner, you'll be presented with a cheque for £5,000 at the Brainwave '83, a new home computer show in the NEC Birmingham in the first week of November.

To enter, simply fill in the form below and attach it to a cassette of the game. Make sure you fill in all the details about yourself and your game on the form.

If the game instructions are not included on the cassette itself, then add them on a separate piece of paper but please ensure that your name and address are included on every part of your entry.

The winner will be the reader who comes up with the best commercial program and Calisto will take it on and market it on a royalties basis.

The judging time is limited so get your entry in as quickly as possible but be sure that your program is properly polished first, to give yourself a good chance of coming away £5,000 richer.

Entries should be sent to: £5,000 Program, Calisto Software, 119 John Bright Street, Birmingham B1 1BE. And remember the deadline is October 16th, so get cracking!

IF YOU WANT TO GET AHEAD!

Alan Outter should be unrecognisable at the next fancy dress party he goes to because he'll be dressed as Aughra from the *Dark Crystal* film.

A hot hairy head has been packaged up and sent on its way to Alan of Cleveland Road, West Ealing, London along with a marvellous coffee table book featuring artist Brian Frood's designs for the film's fantastic characters, an LP of the soundtrack and a T-shirt.

In our May issue we asked you to send a program (or a screen picture) of one of the characters from the fantasy film, *The Dark Crystal*.

The competition was judged by Bruce McNally the creative director of Henson Associates, makers of the *Dark Crystal* and also famous for the careers of Miss Piggy and Kermit in the Muppets.

Bruce was so impressed with the high standard of entry, that he persuaded Henson Associates to look out four more of Brian Frood's books and these will be going to the four runners-ups.

But head and shoulders above the rest was Alan's head and shoulders picture of *Dark Crystal* hero Jed the Gelfling holding a torch. It was produced through a mammoth series of data statements which must have taken him days to key into the micro.

We'll be reproducing the listing (for anybody brave enough to try it) in *The Computer & Video Games* Yearbook 1983. The runners-up were:

Robert Kerr Snoulton of Hurstdene Road, Bournemouth on the 48K Spectrum; R. Everett of Bleak Hey Road, Peel Hall, Wythenshawe on the Dragon 32; David Eaton of 57 Dawlish Road, Selly Oak, Birmingham on the Atari and Tancred Wells, Elfindale Road, Herne Hill, London SE24 on the Vic-20.

Please enter this program in the £5,000 program competition

Program name: . . . .

Machine: . . . . **Model:** . . . .

Number of K needed to run it: . . . . **K**

Other equipment needed to run it: . . . .

Author's name: . . . .

Address: . . . .

. . . .

Telephone No: . . . .

All entries will be the property of Calisto Software and the entrants will assign all rights, patents and privileges of their game to Calisto.

No employees of *Computer & Video Games*, Calisto, or their relatives, will be eligible to enter the competition.

All entries must be sent in with an original coupon from *Computer & Video Games* — NOT A COPY. The judge's decision is final and no correspondence can be entered into.

You can enter any number of programs as long as each is sent in with a form from *Computer & Video Games*. Winners will be notified before October 30th.

COMPETITION COMPETITION COMPETI

IMAGINE THAT YOU WIN . . .

There's 300 brand new Imagine games up for grabs in the city of Manchester.

Completely free for the first 100 people who request each cassette on the coupon below and send it off to us with a Manchester postmark.

There's 100 free copies of the incredible flight simulation and aerial battle game Zzoom. It's already won high praise in our Reviews section this month and Imagine claim it will alter people's perceptions about what the Spectrum is capable of.

And there's 100 Zip-Zaps, where a lone robot battles to survive attacks by wave after wave of power-sapping aliens. Both these games run on a 48k Spectrum and would cost you £5.50.

If you're a Commodore 64 owner, Imagine has just launched its top selling Vic and Spectrum game, Arcadia, for that machine and used the 64's memory to add extra wave's of very peculiar aliens.

So if you're a Manchurian rush to the nearest post office and grab a first-class stamp. The coupon below must be filled in, cut out and despatched to *Computer & Video Games* at Durrant House, Herbal Hill, London EC1R 5JB. Mark the envelope with the name of the game you hope to receive.

This month's chosen city is Manchester and we are giving priority to those requests with a Manchester postmark, but if you live elsewhere in the UK and a full quota of each game has not gone by August 22nd we'll send tapes out to people living anywhere in the UK.

Our October issue takes Liverpool as its 'Imagine City' and we've got more cassettes to give away. So all Liverpudlians should be ready at their local newsagent by the 16th of September with a pen, a pair of scissors and a first class stamp to get their coupons back to us first.

In November it could be your city, so keep a close eye on this page and bend your newsagent's ear to get him to put *C&VG* up on his shelves.

Winners of Trevor Truran's Dice Roll competition, featured in our July issue are:

Equal first, Melvin Sage 18 Falcon Way, Great Clacton, Clacton-on-Sea, Essex CO15 4QP. F. Greer, 26 Ecclesfield Road, Eccleston, St Helens, Merseyside WA10 5NB. Equal 3rd: Jonathan Lewis, No. 2 Cottage, Brooktay Lane, Fradley, Nr. Lichfield, Staffs. J. Walker, 2 Molyneux Road, Minster, Ramsgate, Kent CT12 4DP.

All the winners get software tapes for their computers.

(Tick only one please)

Please send me a copy of:		Zzoom for the 48k Spectrum	☐
Arcadia for the Commodore 64	☐	Zip-Zap for the 48k Spectrum	☐

Name ....

Address ....

....

WHY NOT VOTE FOR YOUR FAVOURITE GAMES PROGRAMME?

Software companies all over the country are going for gold with the help of you, the readers of *Computer and Video Games.*

Do you have a favourite games program that you'd like to see get an Oscar? Or is there a software company you'd like to reward for good customer service?

We've decided that the best of British software houses deserved some recognition after a hard and extremely competitive year which has seen the standards of games software rising fast.

We are sponsoring five Golden Joystick Awards which we hope will become the UK Oscars of games programming.

This is your chance to nominate a company which has given good service or earn recognition for the game which has given the most pleasure in the last nine months. Our five categories are:

● Best Arcade-style Game, which goes to the cassette or cartridge which proves itself the most addictive and thrilling.

● Best Strategy Game, is the title bestowed on the finest cassette or cartridge to test the mind rather than the trigger finger — like a favourite adventure.

● Best Original Game Idea goes to a company which has come up with a game of a completely new type, unlike any board, arcade or computer game seen before.

● Software House of the Year goes to the company which has earned the best reputation for quality games, good service and entertaining advertising.

● Game of the Year is the most coveted Golden Joystick of all, awarded to the game which most impresses the judges in '83.

This game must first have won one of the previous game categories and where that has happened the second-place cassette is promoted to take that title. We're giving everyone a good chance to win something!

Initially we are leaving the judging up to you and want you to tell us your nominations in any or all of the categories.

The title Software House of the Year is open to distributors of overseas software, but for the rest, we are looking for British-based games programmers.

Cut out the form below and make your vote for gaming quality count. Send it to: The Golden Joysticks, *Computer & Video Games*, Durrant House, Herbal Hill, London EC1R 5JB.

Please accept the following nominations for the Golden Joystick Awards.
(BLOCK CAPITALS PLEASE)

....

1) Best Arcade Type Game: ....

By (Software house): ....

2) Best Strategy Game: ....

By: ....

3) Best Original Game: ....

By: ....

4) Software House of the year: ....

....

5) Game of the year: ....

By: ....

Name: ....

Address: ....

....

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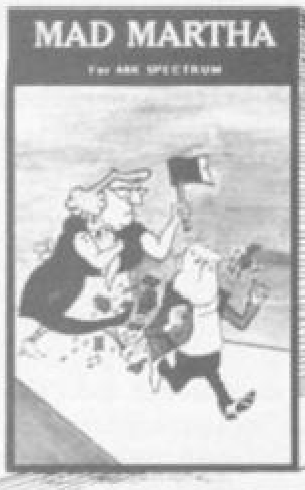

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Written by Chris Evans

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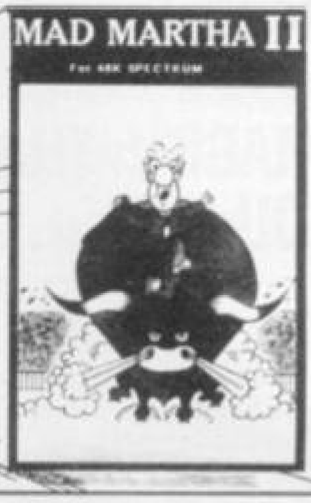

COMING SOON

MAD MARTHA

Poor little Henry is the hen-pecked hero of this domestic tale. One night Henry can take no more. He steals his wages from his wife's purse, and sneaks out of the house being careful not to wake the baby or trip over the cat, and heads for the bright lights to have some fun. Trouble is he runs out of money. His only way to raise some cash is to gamble his few remaining pounds on the spinning wheel of the roulette table.

Just as Henry is getting in to his evening at the tables his wife — Mad Martha — has noticed his absence. Realising Henry has absconded with the housekeeping she sets out after him with an axe.

Guess what part you play in this happy tale? That's right, you're Henry. Watch out for that axe!

Mad Martha ... a marvellous adventure, the whole program is really dotty and a refreshing change from some of the doomladen programs encountered nowadays ... in this game you will not get to the next stage without solving the present conundrum. ***Popular Computing Weekly***

The game's principal features include:-

Full adventure format, accepting multiple commands at one entry, in plain English

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VISA

MAD MARTHA II
(Henry sails the Spanish Main)

Time for the annual holiday and Martha decides to visit her half-cousin Manuel, who is a waiter in a plush hotel in Barcelona.

One afternoon, Martha sets out on a bus tour with her son, young Arbuthnot, leaving orders for Manuel to keep an eye on Henry. Unbeknown to Martha, crafty Henry has a Spanish pen-pal, and has planned a secret rendezvous. Henry leaves the hotel, brimming with enthusiasm and Manuel (who is totally wacky!) is hot on his trail. The adventure takes us through the thrills and spills of a madcap chase, taking in amongst other delights, a bull fight in which poor Henry is forced to play the leading role. Guaranteed laughs and fun for all the family!

This is a game to invest in ... it's funny, it's genuinely original and the graphics are great ... Hit the key to begin, the Spectrum plays a real Holywood-style movie theme tune, and the hunt is on! ***Personal Computer News***

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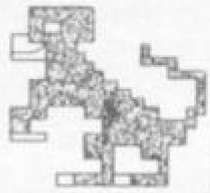

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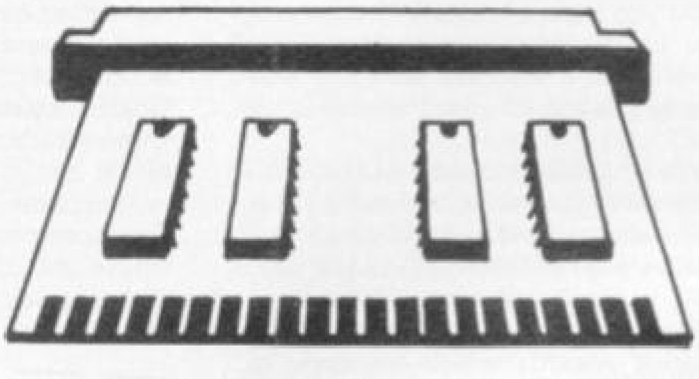

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See PRESTEL Page 600181 for up to date information from SPECTRUM

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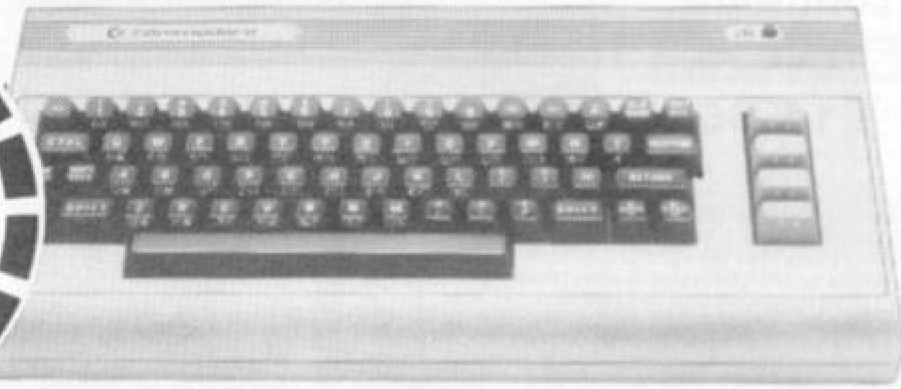

Just look at this **incredible new price** on the acclaimed **Commodore 64** at Spectrum now! The Commodore 64 comes with an exceptionally **powerful memory - a massive 64K RAM - plus a wide-ranging specification** that makes for **superb versatility**. It's a lot of computer, and quite outstanding value at such a low price. The 64's **features** include: **●64K RAM ●Z80 Processor option ●Dedicated video chip ●Sprite 3-D graphics ●Music synthesiser ●Prestel link ●High resolution graphics (320X200) ●16 colours ●And lots more - see your SPECTRUM dealer NOW!**

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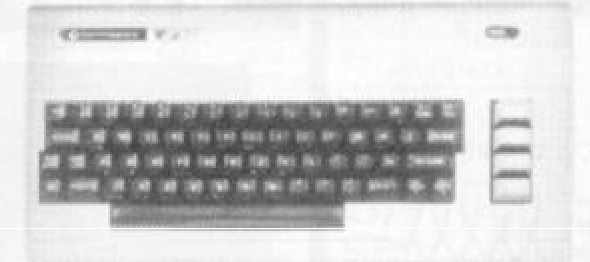

A **complete Home Computer system** including the **VIC-20 Computer,** a **Cassette Unit, introduction to BASIC part 1 - a simple explanation of computer programs - Blitz, Type-A-Tune, Race & Hop-pit. A fantastic deal!!** and **great value-for-money.** But **HURRY!** offer only while stocks last.

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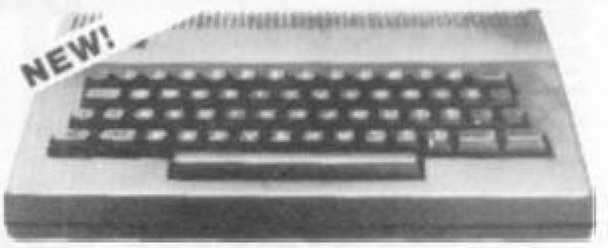

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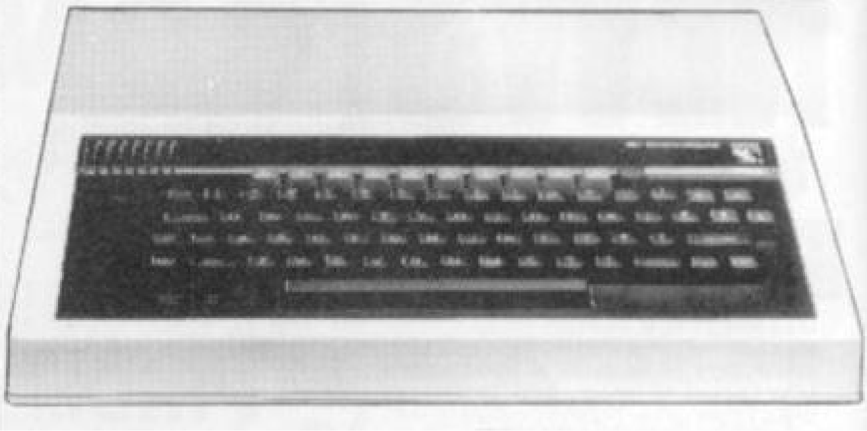

Yes, this **top selling Micro system** is now available from your local **SPECTRUM** dealer -the **BBC Model'B'** offering **32K RAM** plus a **full back-up** of **peripherals & software** too! It's an **infinitely expandable** machine, ideal for the **home or business** and is already widely used for **educational purposes in schools** - so the chances are **your** children may already be **well familiar with its operation,** which must make it the **ideal choice** for the **home** too!

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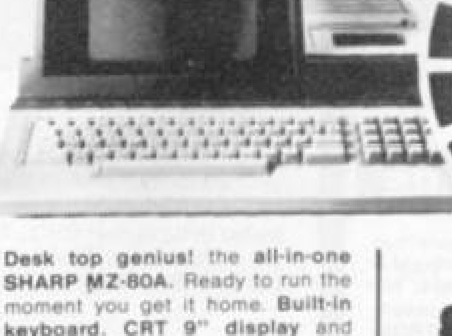

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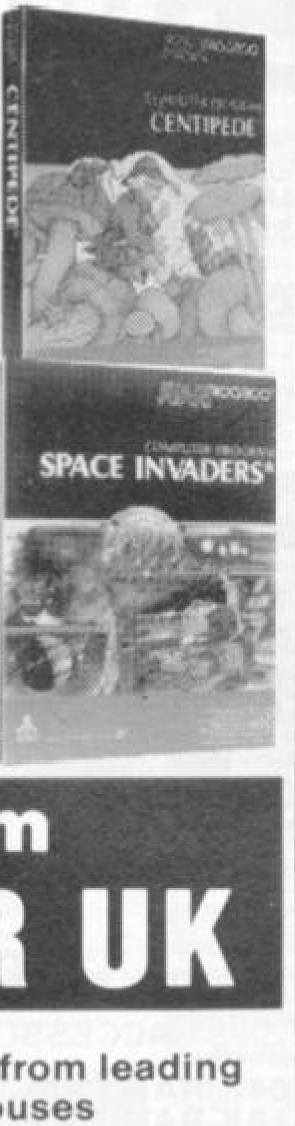

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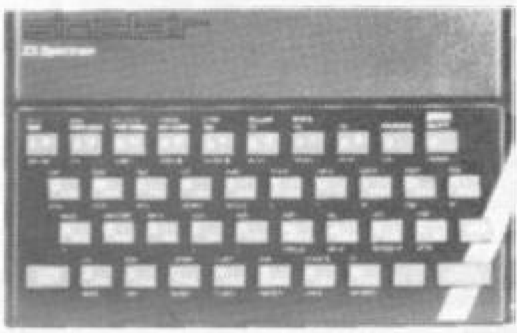

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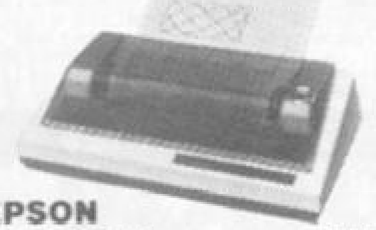

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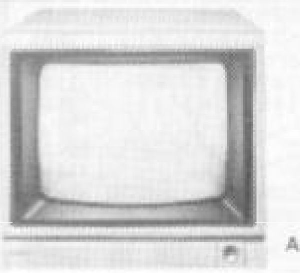

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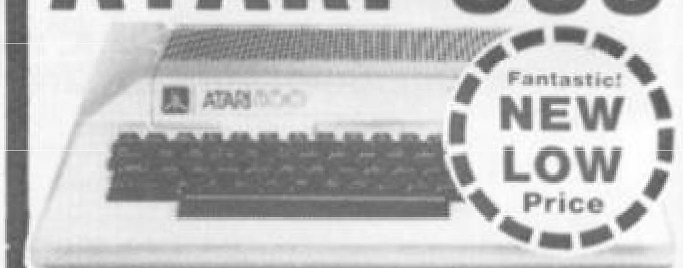

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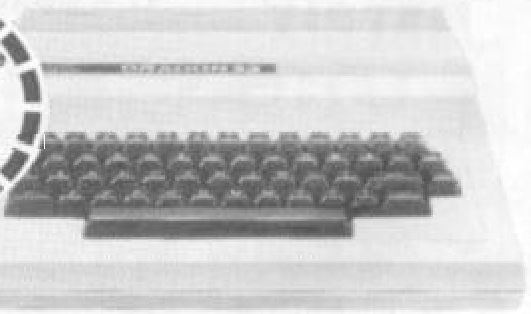

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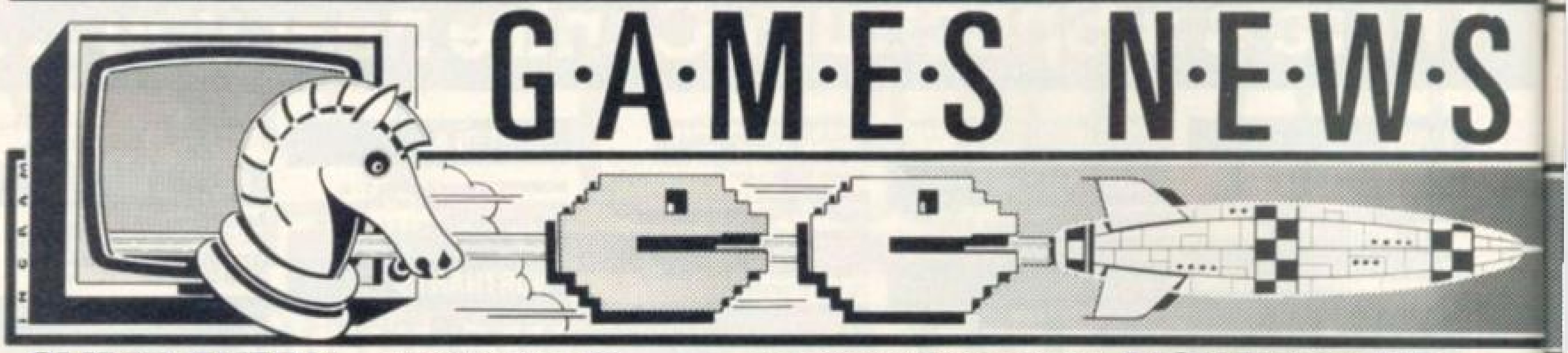
Check **your area** there are many new **SPECTRUM** dealers throughout the **U.K.** So there's a good chance there'll be a **SPECTRUM** centre near you!

Not all stores carry every advertised item, please phone before making a journey — Prices correct at time of going to press E. & O.E.

G·A·M·E·S N·E·W·S



CLIMB EVERY MOUNTAIN WITH SHERPA

EVEREST

Everest enables you to capture some of the glory of Sir Edmund Hilary and Sherpa Tenzing as you set out to conquer the worlds highest mountain.

You are responsible for six climbers whom you must get to the summit in the fewest number of days. The day's climbing commences at 6 am and should be finished by 4 pm. If any climber has not reached camp by this time his fitness will suffer as he struggles to reach shelter after the dark has closed in around the mountain.

Hazards which befall our intrepid climbers are avalanches, crevasses and the ever present risk of a fall into oblivion.

Information read-outs can be obtained on the positions of all climbers, the state of the supplies, the loads that each climber is carrying, weather conditions, and the medical health of each of your six climbers. When all six climbers have safely reached the summit you have won.

Everest runs on a Dragon 32 and is available from Salamander Software of Brighton at £6.95.

LAND YOUR JET OR BLAST A SUB!

SEA HARRIER

Sea Harrier challenges Dragon owners to safely touch down on the deck of the carrier in poor weather conditions.

To get a clear view of the ship you will first have to disperse the thick cloud cover with chemical bombs.

A second sea game is featured on side two of this cassette, entitled Sub-Chase. Depth charge the wolf pack before they sink you with their sophisticated missiles.

Sea Harrier and Sub-Chase are manufactured by the new Dragon Software house Gem of Hertfordshire.

Also new from Gem is a maze escape game called Sultan's Maze. You are challenged to search through the 3D maze to find the Sultan's jewels before your energy expires or the mad guardian of the maze catches up with you.

Another escape game is called Monster Mine. Collect as much money as you can and escape from the mine before the monsters catch you.

Gem now have a range of fourteen games for the dragon including four games packs, a golf simulation, and an assortment of space games. Available at £7.95 from the Sawbridgeworth-based firm.

THRILLS AND SPILLS ON THE OCEAN

AQUAPLANE

Timegate author John Hollis has just produced his second game for Quicksilva. Aquaplane takes you out to sea, skimming across the water on your skis.

It's a heavenly day until — quite suddenly, a flotilla of motor launches appear in front of you. Dodge them using the keyboard controls and allow yourself a sigh of relief as the last motor launch passes harmlessly by. But your relief is premature. Suddenly the sea is full of dinghys out for the day. Once past these still more horrors in the shape of — sharks followed by logs floating in the blue water and rocks.

Aquaplane runs on the 48k Spectrum and is available from Quicksilva now at £6.95. Also new from Quicksilva this month are three new adventure games. Xadom is an adventure and arcade game combined. The idea is to find the "Aartifact" which is your key out of this alien hell.

The second of these adventures takes you back to the story book world of smugglers as you search for Black Beards fabled treasure.

Velnor's Lair is an altogether less romantic encounter with demons, trolls and the undead as you attempt to stop the evil Velnor before he can unleash his evil on the world.

Illustrations by: Jon Davis

FIGHTING THE DULLOIDS CAN BE EXCITING!

EPIC

Battle against the forces of sheer boredom in a tongue-in-cheek adventure featuring the Dulloids of Boredor.

Epic is the name of this comic text adventure game, where you have to save the Island of Moo from the Dulloids in Muddle Earth. Yes, they are trying to turn the island into a boring place.

Only the king can save his kingdom by saying a few magic words, unfortunately he doesn't have them — you do. You have to get the scroll bearing the magic words to the royal palace and present them to him.

As in all adventure games,

G·A·M·E·S N·E·W·S

there are obstacles to avoid, objects to pick up and spells to cast. A variety of characters will be met on the way, one of which is the Dulloids' pet, the Imperial Storm Panda! Beware, he will seek you out and sit on you, or freeze you to immobility, all to stop you journeying any further.

Gawdzilla, the cockney dinosaur may be a potential ally if he can be persuaded to help you.

Epic from Birmingham-based Jabberwocky Software is available for the BBC B at £6.95.

Also available is From Russia with Luck — an adventure cum graphic game. Here you are being chased across Europe by agents of the KGB in your quest to get some secret documents back to England before they catch you.

As in James Bond 007 there are some useful gadgets your most important being a multi-purpose briefcase equipped with a radar scanner.

When your radar shows the KGB to be hot on your heels, the game changes into an arcade shoot-out where, firing through your gunsights, you have to kill the enemy agents as they pop out from behind buildings. If you fail to kill them your last resort may be the suicide pill.

From Russia with Luck for the 48k Spectrum costs £9.95.

THE FUTURE BECKONS FOR ALICE

VIDEOLAND

Alice in Videoland for the Commodore 64 was a showstopper when it was previewed at the recent Commodore show.

This disc-based game breaks new ground for graphical quality and artistic presentation on a home computer.

The hills, countryside and characters from the story rival the illustrations you might find in the Alice books.

One of the screens has Alice falling down the white rabbit's hole. You have to stop her crashing against the sides of the tunnel using the joystick.

Alice is currently being programmed by U.M.I. in Los Angeles and is expected in the UK in September.

Prices have yet to be confirmed but it is unlikely to be in the shops at much below £30.

CHARLIE THE CHEF GETS IN A STEW!

COOKIE

Chefs have been having a hard time recently. After being battered by hamburgers in Burgertime, our hero is once again pursued by his ingredients, angry at being locked in the pantry.

In a new game called Cookie you have to help the chef to knock the escaping food into the mixing bowl with the use of a plentiful supply of flour bombs. However, on either side of the mixing bowl are the dustbins, inhabited by . . . you guessed it! . . . bin monsters.

The object is to get enough into the bowl to allow Charlie the chef to make the cake but if any nasties get in then he'll need even more ingredients.

Cookie is one of two new programs from Ultimate, the people who bought you Jet Pac. Their other offering is a road-race type game with a difference called Tranz-Am (no, that's not a spelling mistake!)

As a change from your car being at the bottom of the screen and the road scrolling up, your car is at the centre and the entire screen scrolls in any direction.

The car is rotated asteroid-fashion using two keys and two others control acceleration and braking.

The object of the game is to collect the eight golden cups of Ultimate which are placed randomly around the large track on which the screen acts as a window. Also shown are fuel gauges and radar devices.

Cookie and Tranz-Am are available now at £5.50 each from this Ashby-based company and should be available in most shops including W. H. Smith. Both games are both joystick compatible.

FLYING HIGH WITH THE TEXAS TI!

PILOT

TI owners can take to the air with a brand new Flight Simulation game out now. A display of the airstrip is shown during take off and landing.

The top half of the screen also shows smaller terrain map for charting longer distances.

Sophisticated flight controls are on board including artificial horizon, heading, altitude, rate of climb, and speed.

Banking, engine power, nose, flaps, and rudder control are manipulated using the keyboard.

There is a training mode which enables you to begin your flight already in the air.

As your skill increases you can add complicating factors such as adverse wind conditions.

Pilot is available from Apex Trading of Brighton at £5.95. The game is tape-based and runs on the ordinary TI99/4a.

Illustration by: Terry Rogers

JOGGER MUST RUN FOR HIS LIFE!

JOGGER

No one is safe from the crocodiles who infest the rivers in Frogger.

In this latest adaptation of the popular arcade game its the friendly local neighbourhood jogger who is in trouble.

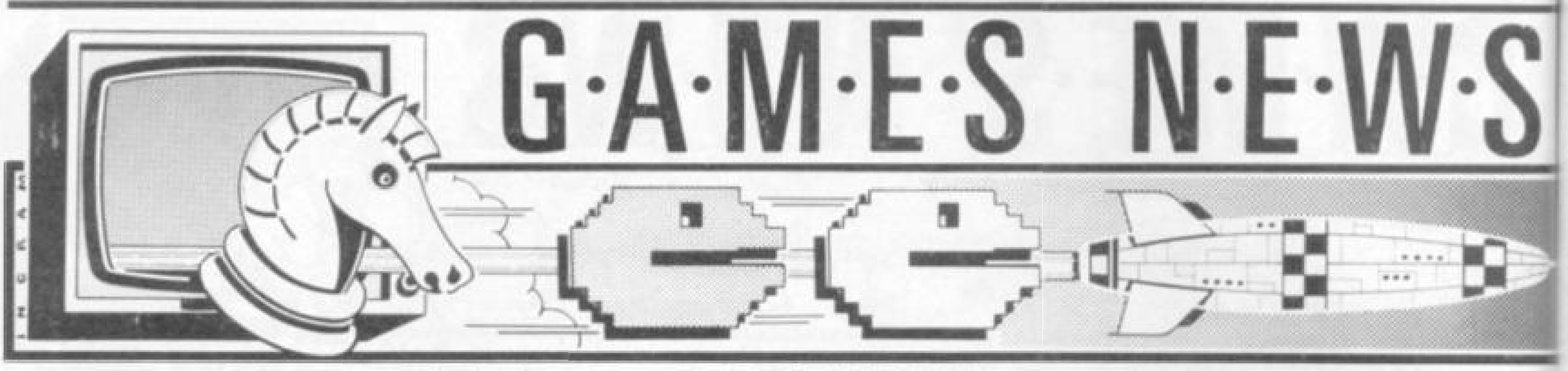
You only have a limited amount of time to get your jogger safely across the busy road and then across the croc infested river. The more joggers you get safely home the higher you score.

Jogger is the latest game from the new Oric software house Severn Software. Also released with Jogger are two adventure games Grail and Moria.

Grail takes you back to the mythical world of King Arthur and his knights of the round table as they set out on a quest for the long lost Holy Grail.

Moria is based on the book Lord of the Rings. You have to escape from the mines of Moria — the home of Durin and the dwarves.

All three games run on the 48k Oric and are available from the Gloucestershire based firm at £6.95.



GAMES NEWS

ATTACKED BY HORRIBLE LITTLE MEN

ZIP ZAP

Zip Zap casts you as a droid being attacked on all sides by vicious aliens.

To survive you have to collect four power discs which will enable you to be beamed up to the next level.

You are armed with a laser gun which will enable you to blast a pathway for yourself though blasting is not the main aim in this game.

The real skill is in controlling your droid and learning how to use the breaks to stop yourself careering into the aliens.

Zip Zap is the latest from Imagine Software for the 48k Spectrum.

The game features an Asteroids-style wraparound screen and has no less than twenty levels to get through. It's available from Imagine stockists now at £5.50.

If £5.50 is a little bit more than you can afford at the moment and you also live in the Manchester area then turn to page eleven for your chance to win one of three new games from Imagine.

The other two games which were featured in our August issue are Zzoom and Arcadia for the Commodore 64.

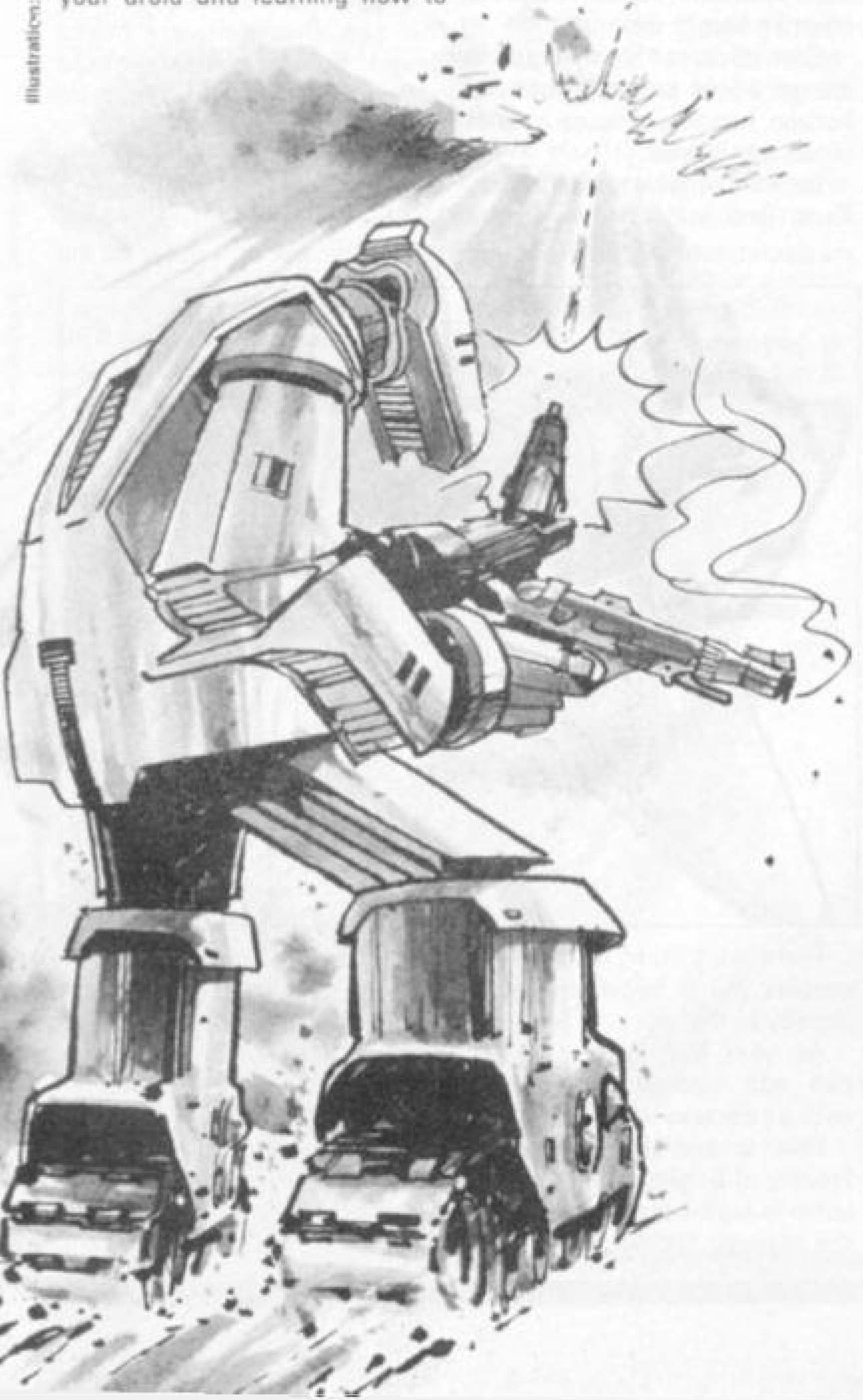


Illustration: Jon Davis

PLAY THE HEXAGON SENSATION!

KENSINGTON

Kensington is not just the stomping ground of Sloane Rangers — it is also a popular board game.

Created by two unemployed inventors — Peter Forbes and Brian Taylor, the game has sold tens of thousands of copies throughout the world.

The game is played on a series of interconnecting hexagons — and is best described as a cross between chess, draughts, and noughts and crosses.

The good news for computer owners is that some of the software houses are converting the game to run on home computers.

Atari have bought the licence to produce a version for the 400/800 and the VCS video game machine.

Psion are also working on a Spectrum version — though they expect the programming to take several months.

TOP OF THE PROGRAM POPSTERS!

ON DISC

Forget pop videos — the latest trend setting pop-pickers will be watching computer controlled graphic displays while they play the latest hits!

The first band to put a program on vinyl were Mainframe, based in Hertfordshire.

They released a single in April this year with four computer tracks on the B-side — one each for the Spectrum, ZX81, BBC and Apple.

Then EMI caught on to the trick and released a single by Chris Sievey called Camouflage which had a game called Flying Train for the ZX81 on the flip side.

Pete Shelley

Meanwhile Pete Shelley, of Buzzcocks fame, now following a solo recording career, put a computer graphics program for the Spectrum on his latest album, XL1, released on the Genetic Records label, and produced by Martin Rushent of Human League fame.

The program is linked in with the music on the album — so you can watch and listen at the same time.

The Mainframe record loaded straight into the respective computers, but — the other two record programs have to be transferred to tape before loading — unless you buy the cassette version of Pete Shelley's album that is!

Could this be the shape of things to come? The next thing you know they'll have computerised Jimmy Saville!

Chris Sievey

There's one game you should play with a home computer before you buy it.

20 Questions.

If you're looking for your first home computer, may we make a suggestion.

Tear out this page.

And ask these questions of every computer you look at.

1) Is the basic price reasonable, say under £180?

2) Does it work with a monitor as well as with an ordinary UHF T.V.?

3) Does it include a basic training manual that doesn't require a science degree to understand?

4) Does it have colour?

5) And sound?

6) Does it take cassettes?

7) And cartridges?

8) And can you operate them with joysticks working directly off the basic unit?

9) Does it have a professional quality keyboard that's guaranteed for twenty million depressions (and no headaches)?

10) Does it have colour graphics that are capable of producing detailed pictures?

11) Is the case robust enough to stand up to the kids?

12) Does it use a standard language that's not a million miles away from English?

13) Is there an expanding range of high quality software available from the makers?

14) Does the software include educational programs for adults as well as the very young?

15) And is there software sophisticated enough to satisfy the experts?

16) Does it use the most up to date technology, for instance the 6809E microprocessor?

17) Will it drive a standard printer directly from the basic unit?

18) Is it made in the UK?

19) And for the basic price will I get an easily accessible, yet large memory of at least 32K?

20) Or will I have to add lots of extras (and lots of money) for that much?

After you've finished pestering every computer salesman in sight, compare your answers to these, courtesy of the Dragon 32 (this is, after all, an ad for the Dragon).

Questions 1-19. Yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes and yes. Question 20. No.

If you're thinking that that's a lot of computer for the money, you'd be right.

However, when you come to read the handbook you'll soon realise that something's missing.

The jargon usually associated with computers.

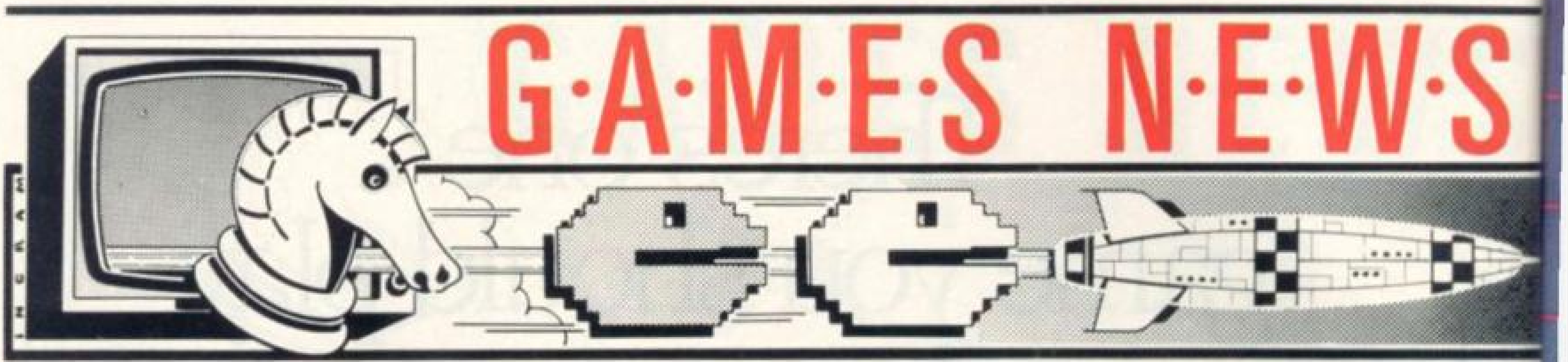
You see every part of the Dragon has been carefully designed to be easily understood, even by total beginners. Yet it has all the features an expert could want. Just ask it.

T.V. not included in price.

DRAGON 32

The first family computer.

G·A·M·E·S N·E·W·S



STAY SHARP WITH LOTS OF ANTS . . .

ANT HILL

A selection of new games are about to go on sale for the game starved MZ80K and A.

Some of the highlights from the range are Ant Hill which challenges you to get into the centre of a screen to secure a prize. No easy task this as the ants and the snakes are out to stop you.

The range also includes a first for the Sharp machine in the shape of Soccer. There are no less than fifty programs on offer from Solo Software for the MZ80A and K all at around £10.

THE FINAL NAIL IN THE ALIEN

KNOCKER BLOCKER

Knocker Blocker challenges you to run around the screen dodging the alien monsters and bashing nails into the screen.

When all the nails have been hammered on one screen you move on to the next. There are no less than eighty screens — so it will challenge even the most talented games player to get through all this lot.

Knocker Blocker is the latest game from C Tech Software of Cheshire.

The game runs on the Spectrum in 16 or 48k and is available now at £5.50.

Also new from C Tech is a scramble type game called Rocket Raiders. Also at £5.50 for the Spectrum.

ADVENTURE WITH THE JONES BOY

CURSED MINE

Raider of the Cursed Mine is a graphic adventure based on Stephen Spielberg's blockbuster movie Raiders of the Lost Ark.

If you have always fancied yourself as Indiana Jones, the swashbuckling survivor of run-ins with snakes, tarantula spiders and evil swordsmen, then plug in your Spectrum and let the fun commence.

Raider is the work of new software house Arcade Software Ltd. Also new from Arcade is a two game cassette featuring a race chase game called Grid Run and computer pontoon. Both cassettes cost £5.50 each.

NAPOLEON GOES SOLO IN FRANCE

PARIS

Not tonight Josephine — I'm reliving the Russian attack on Paris of 1814!

Yes folks, this is your chance to swig some five star brandy and play Napoleon for an evening as you out smart the combined armies of Russia, Prussia and Austria in one of the general's finest ever manoeuvres.

But be careful you don't meet your own personal Waterloo!

The game is called Paris in Danger and recreates the famous battle of 1814.

You can play Napoleon, or the commander of the Russian forces, or even play both roles to recreate as accurately as possible the actual campaign.

The game is played on a scrolling map of France and the surrounding countries. You move your forces around Europe in a bid to save the French capital city from invasion.

But don't forget to take your winter woolies with you — it gets a bit chilly out on the Russian front.

Paris in Danger will be available in August on the Vic-20, Commodore 64, Atari 400 and 800 and the Apple II.

The game is available from Avalon Hill of London though prices have not yet been confirmed.

Also new from Avalon this month are two other computerised war games.

T.A.C. — Tactical Armour Command is a World War II simulation with the player in control of an armoured division and Parthian Kings, a feudal civil war strategy challenge with kingdoms and crowns at the prize!

Illustration: Jon Davis

AMAZE YOUR MONSTER MAZE

with accurate control from Suncom

SLIK STIK
TAC·2
Totally Accurate Controller
StarFighter
THE ULTIMATE JOYSTICK
FIRE
RAPID
FIRE
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JOY-SENSOR
JOYSTICK SIMULATOR

Beating the game requires positive response and fast accurate control.

That's why beating the game requires Suncom from Consumer Electronics.

A range of 3 quality joysticks all with arcade-style features plus Joy Sensor, the ultimate, with precision touch-sensitive control.

No stick to move, no resistance to movement.

Together with a range of C.E.L. Adaptor leads, they're compatible to a wide range of machines.

Check them out at your dealer – they're sure fire winners.

For details of your nearest stockist contact – Consumer Electronics Limited, Failsworth, Manchester M35 0HS.
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Compatible with
Atari CX2600 Game System*
Atari Personal Computer Systems*
Commodore 64 & Vic 20 Computers*
An adaptor (sold separately) is available for Texas Instruments TI 99/4A Computer*
Adaptor Model No. 11060

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Suncom
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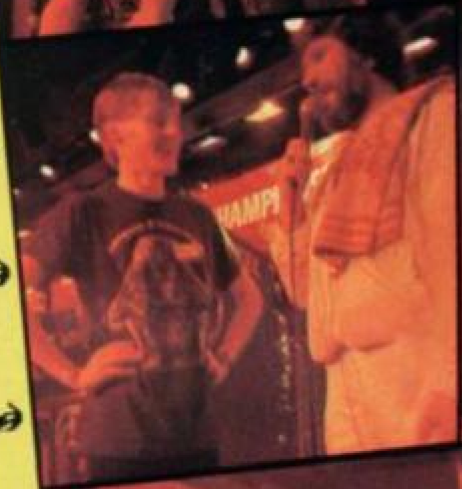
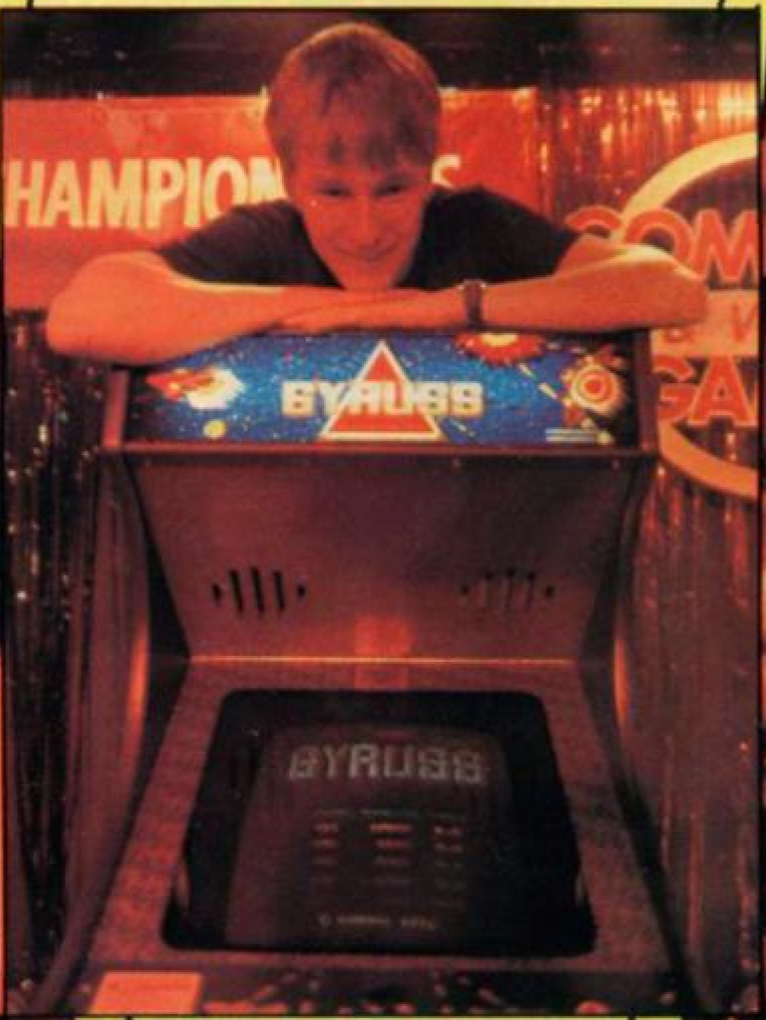
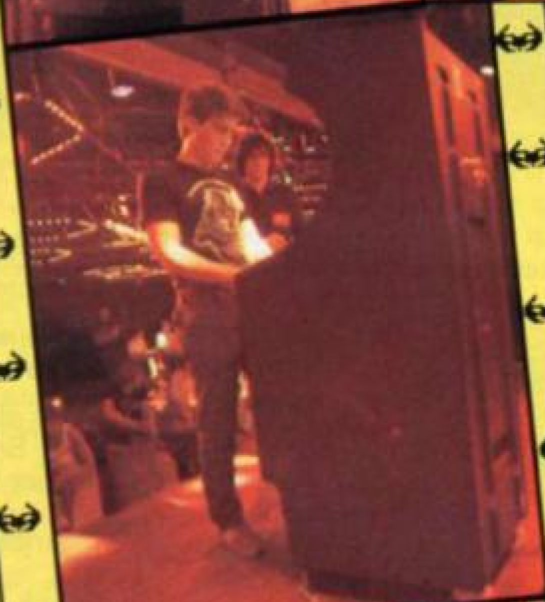
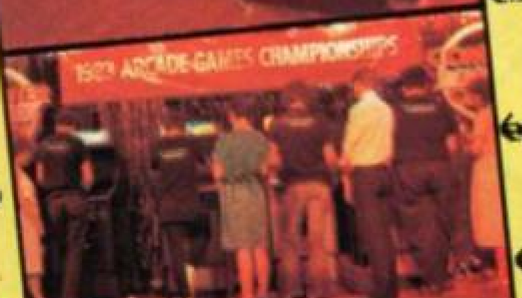
COMPUTER AND VIDEO GAMES




CHAMPION
GYRUSS
GYRUSS

COMPUTER
& VIDEO




1983 ARCADE GAMES CHAMPIONSHIPS

VIDEO GAMES CHAMPION

Why is Julian Rignall smiling? Because he's our 1983 Arcade Games Champion that's why! Julian, pictured above with Taitel's brand new Gyruss machine used for the grand final, defeated 18 other video-wizards to claim the title. You can read all about our new champion and how he trained for the title on the next page. These pictures show just some of the action from the championship finals held at Xenon, the top London nightclub. If you didn't make it to the finals this year never fear — just keep practising on your favourite machine and who knows, next year you may be stepping into Julian's shoes. Meanwhile let's hear it for our Arcade Champ!

Eighteen arcade aces gathered at a plush London night spot last month to battle it out for the coveted title of Computer and Video Games Arcade Games Champion of 1983.

Worthy winner was 18-year-old Julian Rignall of Tregaron in Dyfed. Julian clocked an amazing 73,100 points on Gyruss — a brand new machine — to take the title.

Gyruss was officially launched at the championships and had hitherto not been seen or played by the finalists.

After a briefing from Taitel's Paul Moriarty the six finalists had just 10 minutes each to achieve their highest possible score on the new machine.

This ten minute ruling was in line with the preliminary heats which were played on six machines — Donkey Kong, Donkey Kong Junior, Mr Do, Robotron, Amidar, and Defender.

The lucky winner took back a coffee table style Galaga arcade game with him to Wales courtesy of co-sponsors Taitel.

There were also prizes for the runners up in the shape of five super new hand-held versions of Donkey Kong Junior courtesy of Computer Games Limited, the people behind the game and watch craze.

Radio Luxembourg DJ Tony Prince was on hand to unveil the new machine and Radio One's Dave Lee Travis came along later to present the prizes to the winners and commemorative certificate to all the finalists.

The venue was Xenon in Piccadilly — one of London's most fashionable night spots and a favourite haunt of tennis stars last month during Wimbledon.

All expenses were paid by *C&VG* and some of the finalists also appeared on BBC TV's Breakfast Time.

MEET THE CHAMPION

This year's Computer and Video Games Arcade champ is 18-year-old Julian Rignall from Llangeitho in Dyfed. But before you Welsh readers start jumping up and down and singing Land of My fathers I have to tell you that Julian is actually English.

He moved with his family to Wales seven years ago from Stevenage in Hertfordshire. Since making the move, Julian become fluent in Welsh since Dyfed is one of the few remaining totally Welsh speaking areas of the country.

He lives in the heart of the countryside with his parents and brother Jonathon.

The surrounding hills make it virtually impossible to pick up television broadcasts so Julian spends a lot of his spare time playing video games. Even this takes a bit of effort in Llangeitho — a trip of twenty miles to the Royal Pier at Aberystwyth.

Trips to the pier are not just games afternoons for Julian as he meets his friends here as well. An average day at the pier consists of a couple of hours on the Defender machine just to get warmed up then a stroll and possibly a coffee at a friends house and then back to the pier.

"I'm always the last to leave — they always wait for me to finish off. At the moment I'm trying to learn Donkey Kong Junior, but it's always Defender I come back to. I never seem to get bored with that. It's totally random and no matter how good your are at it there's always something you didn't expect. I have a sort of respect for the aliens!"

Sometimes Julian's Mum pops in to the pier from her antique stall in the market. "She's a Pac-Man freak and not a bad player."

Julian's little brother Jonathon sometimes acompanies him to the pier. "He's into gambling — he's so lucky. I am trying to coach him on Defender."

Julian is currently studying for A levels at school and wants to be a graphic designer. "I'd like to design the cabinets for video games machines and perhaps even the games themselves."

The quiet life in Llangeitho is going to be little less tranquil in the near future when Julian takes delivery of his prize from Taitel.

Final comment from Julian. "I'm going to enter the championships again next year and I expect to turn in a pretty unbeatable score on Galaga."

Julian the champ with Dave Lee Travis

The six finalists in the 1983 championships ranged in age from fourteen to twenty.

Youngest of the super six was Donkey Kong specialist Mark Neale, 14, from Bournemouth in Dorset.

Mark managed an ape-crunching 569,400 points at Boscombe Pier to qualify for the championships.

He's been playing video games for three years but also enjoys cycling, astronomy and map reading.

Mark was one of the entrants interviewed on BBC TV's Breakfast Time show on the morning of the competition. His ambition in life is to become a top cyclist and win the Milk Race.

Also from the south coast was Daniel Curant, 20, a civil servant from Southampton. Daniel came through from the Donkey Kong Junior heats.

His other hobbies include a wide variety of sports but especially ten pin bowling.

His qualifying 107,200 on Donkey Kong Junior was achieved at the Maybush pub.

The Bamber Gascoigne of the top six was Kevin Wetherell, a student at Bristol University where he is reading for a BA in Social History.

Kevin is from Purley in Surrey and also enjoys playing golf and reading science fiction. His 409,900 qualifying score on Mr. Do was scored at the Students Union bar in Bristol.

The highest score we received this year was scored by 15 year old David Ross who clocked an incredible 11 million on Robotron at an arcade in Shanklin, Isle of Wight.

David's ambition is to write a game for *C&VG* and one day design the world's best game.

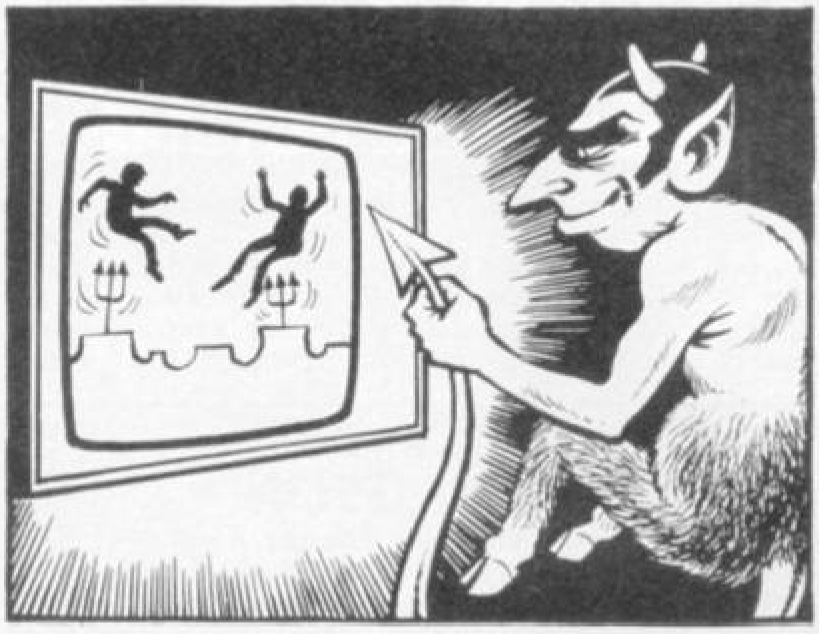
The man with the high score on Amidar is another university student. James Thomas, 18, from Fishguard, in Dyfed clocked up 421,790 at Bennet's Tavern in his home town.

Currently studying geology at Leicester, James intends to go into the computing business when he leaves university.

Photographs: Linda Freeman

THE DEVIL OF A GAME FOR YOU!

SATAN'S HOLLOW



A battle of Good against Evil transcends the usual alien blasting conflicts to match the player against the devil himself.

The first object for the player is to destroy the flying, bomb-dropping gargoyles while building a bridge which allows him to cross over into Satan's Hollow.

There, the real battle with Satan takes place.

The controller directs the player's ship across the screen while his trigger blasts away at the gargoyles and a shield button surrounds the ship in an impenetrable barrier.

Hitting a gargoyle is the only way to create a bridge building block with which to start your construction.

As soon as a gargoyle is destroyed a piece of bridge appears in the lower lefthand corner of the screen.

These bridge pieces can be pcked up by the ship and maneouvred into position to form the bridge.

Once the bridge has been completed the player may choose whether to travel across and battle Satan or stay in the realm of the gargoyles.

The latter choice enables him to keep blasting gargoyles and accumulating flags for every wave of the creatures he manages to destroy.

The more flags obtained before taking on Satan, the better as it increases your bonus for beating the old devil on his home territory.

In between gargoyle raids, the player can meet the devil in three differing guises, as Lucifer, Old Nick and Beelzebub.

These three are disembodied heads that float in various patterns across the sky, belching flame.

Once across the bridge the small figure of Satan will appear in the hollow, hurling pitchforks at the ship and also calling down fireballs out of the sky.

Other monstrosities which appear during this game include a bridge bomber which attacks the completed sections of a bridge and the dark gargoyles whose red eyes must be aimed at. A devil of a game that should please video fans.

THE AGE OF THE TRAINS!

SUPER LOCO

The train is asked to take too much strain in Super Locomotive — a game which would make even Southern Region commuters think twice about rail travel.

The game splits the screen into two views of the action. The top half of the screen shows a bird's eye view down onto a series of rail-tracks and sidings that make Clapham Junction look ordered.

The second shows a side view of the locomotive as it races across those tracks.

From the top view you can see the speedy locomotives that are on the trail of your own locomotive. You can also see the red lights, through which you must not pass, the lorries which occasionally travel over the tracks and the planes which fly behind you, with bombs at the ready.

Observing all this enables you to judge which route to take at the next set of points, how to avoid the obstacles set in front of you and how close the opposition is on your trail.

From the side view you can see the track traumas scaled up to take in the detail of the engine as it races away from the pursuing trains and planes.

Using this you can guide your smoke puffs into the pilot's eyes and over the dropping bombs.

Your immediate answer to most problems is to turn into a "super" locomotive which can ride roughshod over any obstacle.

The other possibility is to send out smokey attacks which can dissolve descending bombs and fight off the plane attacks.

Unfortunately the bursts of "super" power are shortlived and tend to drain your energy quickly.

This is a game which depends heavily on the operator settings. Too difficult and the game rapidly becomes unplayable.

Given a good setting, it's an enjoyable romp through the sidings, with a marvellous rousing tune that adds immensely to the action. Perhaps it really is the age of the train!

TREKKIES TAKE ON KLINGONS

Illustrations: Terry Rogers

STAR TREK

Long before *E.T., Tron, Empire Strikes Back* and *Raiders of the Lost Ark, Star Trek* transferred from the film screen to computer screen.

Now it has moved further, into the realms of arcade screen and it's better than ever.

The screen is split into a three way display, featuring a status report, long-range sector scanner (LRSS) and the view from the bridge.

Three dimentional perspective and full colour vector graphics make it like a colourful outer-space Battle Zone.

You captain the USS Enterprise on its mission to secure sectors of the galaxy against the Klingon threat while searching for the evil Nomad.

All the way through you are collecting STU (Strategic Training Unit) points.

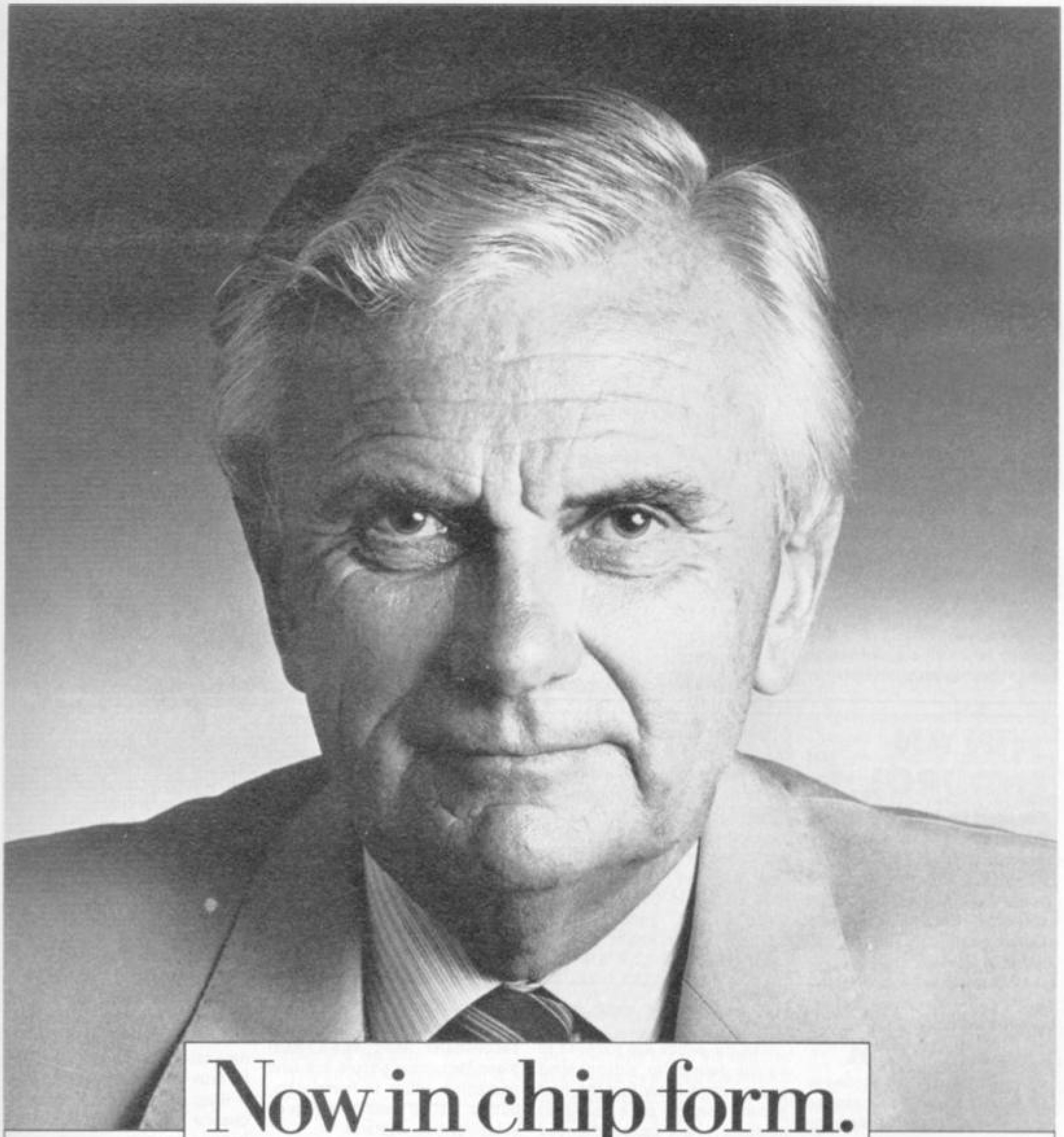
The Enterprise controls are intimidating at first. A rotary control allows you to move and fire in any direction and other possibilities include: launching Photon Torpedoes and warping to another sector of the galaxy.

Use the long-range sector scanner to check on any threats in a given area and the bridge view to conduct the short-range battles.

Klingon ships come in three colours, red attack and destroy the starbases which help the Enterprise gain extra energy; purple attack the Enterprise itself while white ships gain speed and ram your craft.

Saucers are another problem as they can drain warp energy from the starship but the real threat, the Nomad appears in sector 2.1 as a single yellow pixel and leaves mines wherever it travels.

Three hits after the shields are down will destroy the Enterprise- unthinkable in the TV series of course, but all too likely in the arcades.



Now in chip form.

If your BBC Micro could talk, what sort of accent would it have?

A BBC English one, of course.

Which is exactly why Acorn Computers, who designed and built the machine, have produced its very own speech chip featuring the dulcet tones of Kenneth Kendall.

Called Speech Synthesis, it's a pair of chips that can be plugged into your BBC Micro by your local BBC/Acorn dealer. On them, you'll find 164 words/syllables spoken in familiar fashion by the famous retired newscaster, all of which can be combined to form several hundred other words.

The chips also provide the 'serial' processing capability whereby future software cartridges can also be plugged into the front of your BBC Micro. (The machine's vocabulary will be widened via such cartridges.)

Priced £55, Speech Synthesis is available from your local BBC/Acorn dealer. (To find out where that is, simply call 01-200 0200.)

If you'd like more information, he'll complete the story. In plain English, of course.

ACORN COMPUTER

PLAYING GAMES IS GOOD FOR YOU!

U.S. EXPERTS BACK THE VIDEO BOOM

Video games are good for you according to a panel of top American doctors, psychologists and researchers.

The academics came together at a recent conference at Harvard University to discuss the social and psychological effects of video games.

America is the world centre of video games where the average teenager currently spends more money on video and computer games than on records and films put together.

Included in the evidence presented was the report of William Lynch, director of the Brain Injury Rehabilitation Unit of California. Doctor Lynch told the conference how video games were being used to help brain injury sufferers re-learn skills as well as "improving motivation and attention span".

Children's hospitals are also introducing video games, in experiments to see if the games can be used as incentives to aid recovery and boost morale.

On the social effects of video games no evidence was presented to support the view that arcade video game enthusiasts measured up to the popular stereo-type of poor performers at school, who often steal money and take time off to play the machines.

Education specialist David Brooks presented research based on a thousand teenagers who regularly visited arcades that no less than 68 percent obtained above average grades in school exams.

Mr Brooks also found that not all the time spent in the arcades was used playing the machines. The arcades were places where young people met to socialise with friends.

Atari's head of Behavioural Study, Professor Bob Olton, has been visiting Europe to discuss the conference and his firm's new range of educational games for young children.

Professor Olton told *Computer and Video Games* that he did not think another large scale conference of this type would be held again next year but instead believed that more specific research would be carried out into key areas — such as medical applications, the psychology of video games and effects on family life.

So next time your Mum moans at you for not getting any exercise and spending the whole week end huddled over a video game tell her video games are good for you — 'the experts say so'.

Despite advertising for researchers to present papers both for and against video games no one took up the challenge to attack the new leisure interest.

On this side of the Atlantic the argument against video games has concentrated on the stress inducing factor — though this is hotly disputed by the Americans.

WIN AN ENDURO!

You could be the first person in the country to own a super new Enduro cartridge courtesy of our friends at Activision.

We have ten spanking new cartridges to give to the first people who can tell us the name of the last British driver to hold the Formula One world championship title.

All you have to do is put your guess on a postcard and send it to reach us not later than September 16th when the first ten correct entries out of our sack will win a prize. Send your entries to Computer and Video Games, Enduro Competition, Durrant House, 8 Herbal Hill, London EC1R 5JB.

GAMES THAT TALK BACK

Feeling lonely? Want someone to talk to? Then cheer up because help is only a game cartridge away.

Talking games were first launched by Mattel who introduced their speech add-on last year with two games — Space Spartans and B17 Bomber.

Since then they have followed up with a talking Tron game — Solar Sailor. But it is not only Intellivision owners who will be able to enjoy talking games as Atari have announced a speech add-on as have Philips.

The Philips talker has the widest vocabulary and can have words typed into it from the keyboard.

The Atari talker is similar in design to Mattel's with the words used stored on the cartridges that plug into the voice synthesiser.

Talking games are believed to be the future for videogaming and it seems likely that the next generation of entertainment computers will have advanced

ATARI PRICE WARS

Summer bargains abound in the video games shops as the price war hots up.

Atari recently lopped £5 off the price of any new game Centipede for a limited period.

Imagic are offering two games for the price of one with Riddle of the Sphinx and Fire Fighter and Cosmic Ark and Atlantis selling in double packs.

Sales are down everywhere — partly as a result of the seasonal Summer slump but the boom in secondhand Atari VCS's must mean that many people are now upgrading either to home computers or to more advanced video games systems.

This is good news for existing VCS owners who can look forward to selection of cheaper games in the near future.

C&VG's advice to games buyers — shop around and save yourself a few pounds.

CONTEST UPDATE

We've been running so many competitions lately in our Video Gaming pages we thought it was about time we gave you an update on the prizes still waiting to be won.

River Raiders still have a chance of winning a Spiderfighter cartridge courtesy of Computer Games Limited if they can score a million points on this tough shoot 'em up.

Phillips owners are also in with a chance of winning a new Videopac of their choice if they can clock up more than five hundred points on Krazy Chase.

Simply send us a photograph of the screen of either game and we will send you your prize.

People wishing to enter the Krazy Chase competition should also state the game they would like to receive as a prize.

We have five games to be won in each competition and the usual *Computer and Video Games* competition rules apply.

STARPATH WINNERS

So you think you know all that there is to know about video games do you? OK, smarty, I bet you didn't know that Pac-Man was named after the Japanese word Paku which means to eat. Or that Demon Attack has 84 waves of aliens. Where did you think Atari's HQ was? No, it wasn't Slough or Tokyo. It's actually in the good old US of A in the sunshine state of California. Frogger experts would also know that a snake stalks the river bank in this popular arcade conversion and finally that the hit Activision VSC game — Pitfall, was designed by David Crane.

We asked you the above questions in our July Supercharger competition. The first three correct entries were from Lee Cawhwell fo South Shields, Tyne and Wear, John Walker of Ramsgate, Kent and N.Woodham of Hemel Hempstead.

The lucky winners will receive a free Starpath Supercharger and two games of their choice to go with its courtesy of Electronics Leisure Products of Raheen, Limerick, Ireland. Well done!

GAMING

THE FACE INVADERS!

Intellivision owners really got their teeth into our Name the giant burger competition featured in Video Gaming pages in our July issue.

We asked you to come up with a name for the burger depicted by artist Phil Littler.

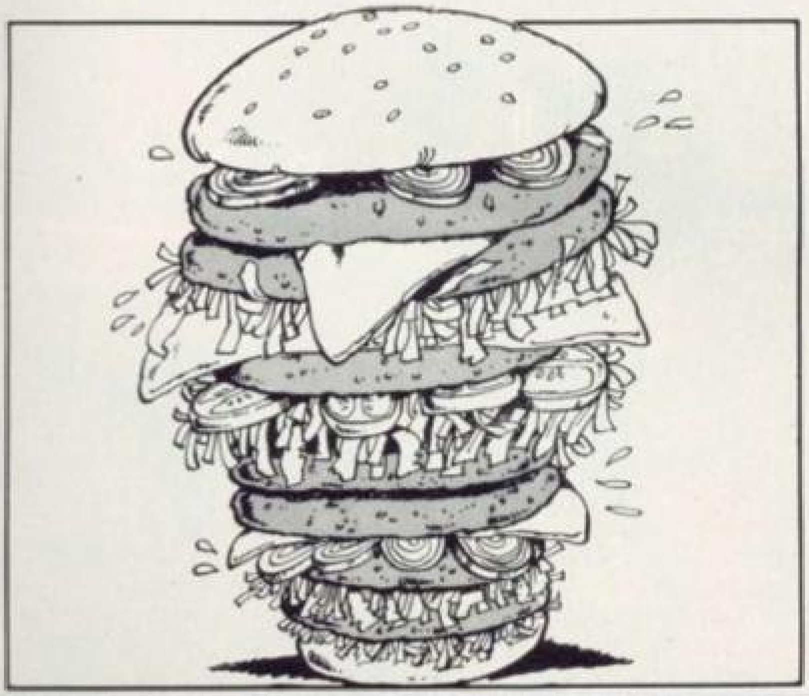
The entrants made appetite boosting reading and by the time I got through them all I was starving. The five best names all earn a free Burgertime cartridge courtesy of Intellivsion.

M.D. Sermon of Portsmouth came up with my personal favourite "The Leaning Tower of Burger", and there were shades of the Hitch-Hikers Guide to the Galaxy in Mark Schneeweiss's entry, "The Pan Galactic Gargle Burger. You didn't tell us your address Mark — perhaps you can get in touch so we can send you your prize.

Slightly more intellectual is the R.A.M. (Really Amazing Morsel)" or the "R.O.M. (Rather Oversized Mouthful)" from W. Hale of London.

Andrew Thompson from St. Albans, Herts. thought about the problems of trying to eat such an enormous burger and came up with the "Face Invader".

The longest of our prize winning names came from J. G. Benson of Huddersfield who came up with this parody of the old Coca Cola Advertisement!: "Beefbashinbrunchylunchinfrenchfryinfastfoodinsaladsmachinsweetsavourinketchupcatchineggcrackinpepperpinchinpicklepitchinkitchenbitchinlettucelimpinsessameseedinbuncrunchin' Burgerbite!" Try saying that with a mouthful of burger! Congratulations to all our winners — a Mattel Burgertime cartridge will be on its way to you very soon.



END OF THE 5200 LINE

Atari have abandoned plans to launch the 5200 advanced video games system in the UK.

The Atari VCS is still to be produced even though it is now five years old and considerably inferior in design to some of the newer systems.

Atari will continue to produce new games for the VCS and are to launch a range of add-ons including a speech synthesiser for talking games and a keyboard which turns the VCS into a home computer.

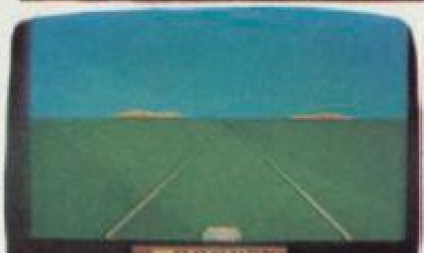
JOYSTICK JURY

RACE THESE HOT CARS!

Would-be racing drivers will have plenty of opportunity for sneak armchair practice this autumn, as long as they also have an Atari VCS.

It seems that road-race games are about to hit the home video circuit in a big way.

The official Atari offering is a VCS version of their arcade game Pole Position, due to be launched in cartridge form this September.



You are at the wheel of a powerful racing car and the idea is to overtake as many cars as possible in the shortest time.

The main race, however, is open only to those who qualify in the first round which you have to do by completing a circuit in a slightly longer time. This ensures that newcomers to such games are not faced with a seemingly impossible task.

The car has two gears, high and low, which can be selected at any time by pulling the joystick towards you for high and pushing it away for low gear.

Left and right are used to control the car itself while the fire button acts as a brake.

The circuit is well displayed. It takes up almost the entire width of the screen in the foreground and about half that in the background as it goes towards the horizon.

The opposition to Pole Position comes in the form of Enduro from Activision, due to be released in a couple of months.

Another road-race game, this features a 24-hour rally in which you have to pass as many cars as possible in one day.

The time of day and the various stages in the race are represented on screen by some really stunning graphics which are among the best I've seen from a VCS.

The race starts in the morning with a green road and blue horizon. As the day wears on the colour of the sky changes with a colourful and gradual sunset with various shades of pinks and reds.

Then comes night. The display changes to black and white and only the lights of the cars are visible. In the middle of the night comes the fog. Visibility is halved and driving becomes more difficult.

Quota for the first day is to pass 200 cars and if you succeed the target rises to 300 for subsequent days. If you survive for five days a trophy appears on the screen. Send a photo of this to Activision for free membership of the Roadbusters club.

Enduro wins hands down on graphics. The road is clearer and the game has various screens with different times of day and weather. Pole Position has just one.

I found the Activision car easier to control, except in the snow where steering is deliberately sluggish.

I passed 200 cars quite quickly but 300 in the second screen is far more tricky.

THE VERDICT

If I wanted a road race game my personal choice would be Enduro. Quite simply it has more features and superior graphics.

	Pole Position	Enduro
● Action:	**3**	**4**
● Graphics:	**3**	**5**
● Addiction:	**3**	**4**
● Theme:	**4**	**5**

VECTREX
PLAYER ONE
PLAYER TWO
2500
Mine Storm
ESCAPE
THRUST
FIRE
VECTREX
1
2
3
4

If you think you've mastered video games we have some bad news for you.

If you are a dab hand at video games on the box we'd like to invite you to try the most exciting home computer games system you have ever seen: called VECTREX.

Vectrex is no ordinary video games unit linked to the TV. It's a self contained computer game system with its own built-in screen. (Say goodbye to the TV!)

For the first time you can actually have all the challenge, speed and excitement of an arcade video game system in your own home.

PLAYER ONE
PLAYER TWO
FUEL LEVEL
SCRAMBLE

CLEAN SWEEP

HYPER CHASE

VECTREX the real thing!

You've probably heard a lot of people claim to offer 'real arcade' excitement before. The reason we've succeeded is that we actually use the same technology as in many arcade machines.

Vectrex uses vector graphics which give clarity, speed and control never before available in home game systems.

Vectrex also uses the same type of sound micro chips found in arcade machines, offering more exciting, recognisable game sounds.

Vectrex has its own built-in monitor, so you can play it anywhere. Leave the rest of the family to watch Coronation Street while you blast off into space on your own!

The greatest games on Earth and beyond!

The Vectrex game library is large, wide and varied. You can choose from terrestrial adventures, space encounters and sporting endeavours. Vectrex even has software that talks!

All the Vectrex software including favourites like SCRAMBLE,* CLEAN SWEEP** and HYPER CHASE can be played by one or two players. Some games even have simultaneous head to head game play using two hand controllers.***

Don't just read about it, go and try it!

If you're interested in finding out more about Vectrex why not fill in the coupon below and send it to us. In return we'll send you full details of this unbeatable new system and its range of game software.

We'll even include a free Vectrex pen and an entry form for a competition that could win you your very own Vectrex game system.

Mind you, winning one is one thing, MASTERING it is another.

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**Trademark of and licensed by Stern Electronics © 1980.
***One hand controller supplied with each Vectrex system. Additional hand controllers available at extra cost.

**To: Milton Bradley Ltd., CP House, 97-107 Uxbridge Road,
Ealing, London W5 5TZ.**

Please send me more details on the exciting Vectrex System, my free Vectrex pen and the Vectrex competition entry form.

Name ______________________

Address ______________________

____

______________________ Postcode ______________________

CVG1

VECTREX MB

JOYSTICK JURY

TAIL OF THE LOST MOUSE

If you are looking for a maze game for your brand new Colecovision then the choice so far is pretty limited.

In fact there is just one, Colecovision's own Mouse Trap — based on the Exidy arcade game of the same name.

Mouse Trap is considerably more difficult to learn than Pac-Man which perhaps explains its comparative failure in the arcades.

However, this added difficulty is a bonius for home use — where you can have an infinite number of games without the arcade shutting or running out of cash!

You are a mouse running through a maze eating pieces of cheese as you travel. Bonus items appear at random throughout the maze such as keys, spectacles, and safety pins.

There are also larger cheeses worth more points and dog bones. When you have collected several bones you can push the dog button which turns you into vicious bulldog and set out after the cats that are trying to thwart your mouse's progress.

Just as in Pac-Man your score multiplies according to the number of cats you can catch.

Game play is brought a stage beyond the basic maze idea by the ability to change the shape of the maze as the game takes place.

A series of gates can be closed and opened to prevent the cats getting at you.

At the higher skill levels there is also a hawk which dives at you — although I must say the creature looked more like an aircraft than any species of feathered friend that I've spotted in the English countryside.

The bird is also easy to dodge and is more of frill than adding anything to the game.

Colecovision's unplayable joysticks are at their worst in this game where manoeuvrability is the key to high scores.

THE VERDICT

An excellent maze game, but will someone, somewhere, please design a decent joystick for this exceptional new machine.

- **Action** ⊥⊥⊥
- **Graphics** ⊥⊥⊥
- **Addiction** ⊥⊥⊥⊥
- **Theme** ⊥⊥⊥

It's here — the first independently produced game for the Phillips G7000.

A first for Imagic, with versions of their top sellers Demon Attack and Atlantis.

The jury have been out for several hours now considering the verdict on Demon Attack.

One of the main points raised by counsel for the prosecution was the jerky slow moving missiles. It was felt that this compared poorly with the fast action obtainable on the original 2600 version of this colourful games.

In a powerful speech which must have convinced many of the waverers on the jury the young barrister told the court that Phillips Demon Attack has no laser spitting aliens — thus leaving out the prettiest part of the original game.

It's pointless to speculate what the verdict will be — you'll just have to wait till the end of this review to find out what that will be.

For my own part I found the laser base very sluggish. I don't know if this is due to the game itself or the infamous Phillips joysticks — either way you get blasted all too easily and more often than not through no fault of your own. Not the best thing to happen when you're dealing with deadly aliens.

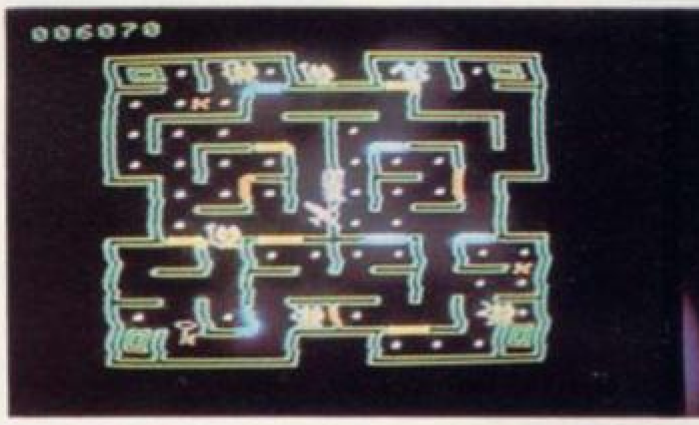
Colours are duller on the G7000 version than on the Atari which — all in all adds up to Demon Attack being a fairly unsuccessful conversion.

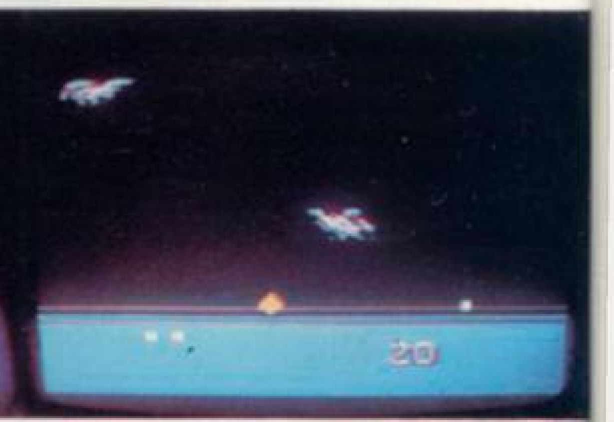
Full marks to Imagic for producing games for the Phillips but a little bit more consideration to what would make a good game for this system rather than what would sell well on it might have produced a better game.

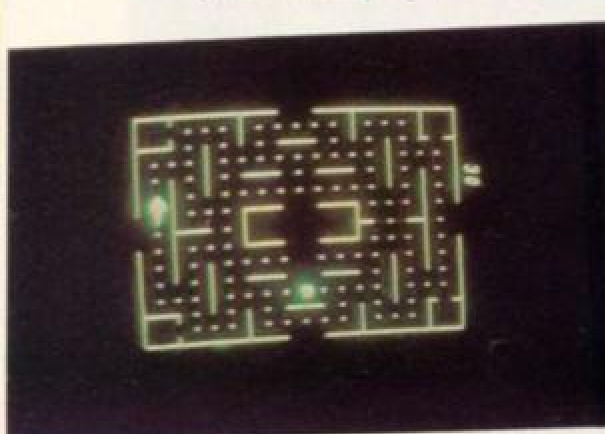
THE VERDICT

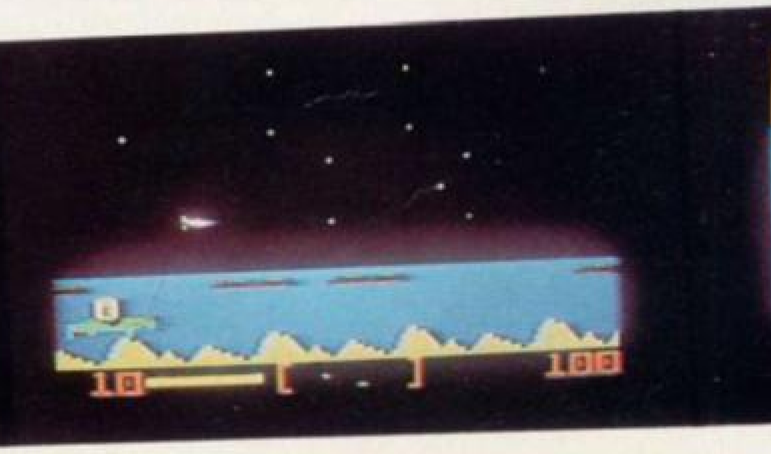
Not the best shoot 'em up available for the G7000.

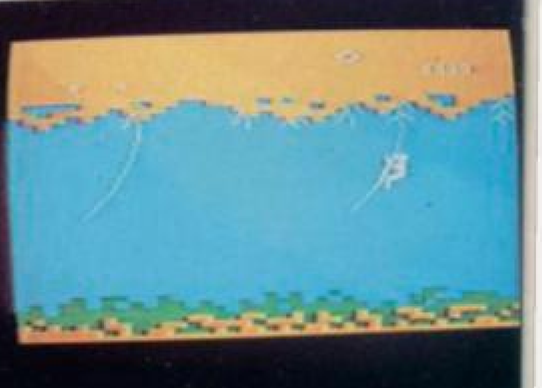
- **Action** ⊥⊥⊥⊥
- **Graphics** ⊥⊥⊥
- **Addiction** ⊥⊥
- **Theme** ⊥⊥⊥











TOP TEN

GAME	MANUFACTURER	GAME	MANUFACTURER
1 Phoenix	Atari	6 Vanguard	Atari
2 Donkey Kong	CBS	7 Defender	Atari
3 Frogger	Parker	8 Ms Pacman	Atari
4 Pac-Man	Atari	9 Demon Attack	Imagic
5 River Raid	Activision	10 Space Invaders	Atari

All the above cartridges are produced for the Atari VCS home video games centre.

Clean Sweep is the Vectrex answer to Pac-Man. But in this version the maze is intended to be the corridors of a bank and the dots represent banknotes scattered over the floor as the villains made good their escape. The Pac Man is replaced by a vacuum cleaner — sucking up the notes and the ghosts by the Grabbers — claw-like creations which chase you around.

This all sounds great in the instructions on the side of the box. Trouble is once you plug in the game there is nothing remotely resembling a bank, a bank robber, or any cash.

The idea of the game is to suck up all the cash scattered around the maze with your vacuum cleaner. This looks like a little fog horn.

The robbers are represented as clacking claws which snap open and shut as they chase you around the maze. In the four corners of the maze are superchargers that you can visit once on each screen.

When supercharged you can set off after the robbers and, if you manage to catch one whilst still supercharged — score 100 for one, 200 for two, 400 for three and a maximum 800 for four.

Your vacuum cleaner can get full up — and has to be emptied by going to the centre of the maze.

As in Pacman there are screen exits which enable you to disappear and then reappear at the other end of the maze.

It's difficult to lose yourself in the theme of the game as the graphics are so unconvincing.

Game play rapidly becomes boring and mechanical as there are no little twists or hidden bonus earners which you can built up to as your skill increases.

If you want a new game for your brand new Vectrex check out instead Cosmic Chasm.

THE VERDICT

Guilty in the first degree — a stupendously mediocre game.

● **Action**	⊥⊥
● **Graphics**	⊥
● **Addiction**	⊥
● **Theme**	⊥

One of the best selling games of the year is undoubtedly Activision's Pitfall.

Not surprising therefore that copies of the successful formula should start to appear.

The first was Imagic's Tropical Trouble for Intellivision and now we have Jungle Hunt from Atari.

The idea of this latest VCS cartridge is to capture the Beautiful Maiden (yawn).

You play the part of Safari Sam who has to overcome four screens of danger.

Using the joystick controller Sam swings through the trees — from rope to rope Tarzan style — pressing the fire button to jump.

Once through the Deadly Forest, Sam finds himself in the crocodile infested Reptile River. Armed with a spear he must impale the crocs on the end of it to score points and stay alive.

The next screen brings our hero safely back to terra firma. Well, not that safe really, as he is being bombarded with boulders that he has to hop over, Donkey Kong fashion.

The final hurdle is to avoid the spears being hurled by the vicious native who guards the Cannibal Camp where the maiden is held captive.

This game is really intended for the younger games player and does not offer a strong enough challenge to the serious games player.

Graphics can't hold a coconut to Pitfall and the gameplay quickly became tedious. Jungle Hunt is in the shops now at £24.99.

THE VERDICT

If you are looking for a safari partner for your VCS we would suggest you take Pitfall Harry and leave Safari Sam in the shops.

● **Action**	⊥⊥
● **Graphics**	⊥⊥
● **Addiction**	⊥⊥
● **Theme**	⊥⊥⊥

Imagic threw the best features of two successful arcade games together and came up with Nova Blast, a hybrid video game for the Intellivision system.

From Defender it took the screen scrolling from side to side and a radar screen. From Missle Command came the cities which need protecting from an onslaught of aliens.

Sounds good — but unfortunately the two elements have not knitted into a well-balanced game.

Your craft shoots along above an ocean, with four cities lying, like Atlantis, beneath the waves. These are protected by energy barriers from the alien hordes which dive out of the skies.

But one direct hit is enough to destroy the barrier and the next hit will destroy the city itself.

Barriers can be replenished by your aircraft by use of a beam. You slow down over a energy source to beam it onboard and then beam it down to your undefended city.

Of course energy sources tend to be some way from the cities, so you have to leave a city unguarded to collect new supplies.

Radar shows whether a city has its barriers up or down and it also shows your craft and the aliens.

The aliens are rather unimaginative in design and hurl themselves around the screen only slowing down over the city targets and going into a spiralling dive onto the cities — they don't miss.

Water walkers are the underwater peril as they stalk your cities they hurl bombs skywards. Aliens come in waves and bonus scores are built up for each city still standing after each wave.

On the easy levels, the trick for saving at least oen city is soon learnt. On other levels, thought is needed to combat the walkers.

Graphically disappointing, Nova Blast suffers from the predictability of alien movement, they just overwhelm your cities by a sheer force of numbers.

THE VERDICT

Guilty of unimaginative game design which relies too much on old ideas which worked well in other games, not in Nova Blast.

● **Action**	⊥⊥⊥⊥
● **Graphics**	⊥
● **Addiction**	⊥⊥
● **Theme**	⊥⊥

REACHING OUR VERDICT

Sentences awarded by this court are as follows.

● Action: This refers to how much you have to do. How many screens are there, how many challenges, characters, and generally how much is going on.

● Graphics: How pretty is the game.

● Addiction: Perhaps the most important category of all. How long will the game hold your interest. Will you be able to put your joystick down.

● Theme: This is the combination of storyline, action, graphics. Does the game live up to the scene setting blurb on the box.

The maximum five joysticks will rarely be awarded by the jury as it is our belief that the truly excellent game is a very infrequent occurrence.

Three sticks is an average score for games of reasonable quality but not in the opinion of the jury worth reaching for the wallet. In order to be worthy of handing over cash for games must score at least four sticks in at least two categorys. Two sticks deserve imprisonment.

One stick gets a life sentence and games which score no sticks at all will cause the judge to don his black hat and order the manufacturers to be taken from this court and hung by the neck until dead.

ANIROG SOFTWARE

3D TIME TREK

At last a 3D game for the VIC! Although badly wounded you are determined to seek and destroy the marauding space pirates who have now dispersed around the galaxy in search of fresh prey. A brilliant Startrek game with a difference — spectacular 3D graphics and real arcade actions

JS VIC 20 16K £5.95
JS COMMODORE 64 £5.95

XENO II

An E-XPANDED-D screen presentation with superb action packed space thriller, written entirely in machine code with four action packed stages.

JS VIC 20 16K £7.90

DOTMAN

Ghosts chase you as you try to eat the dots and collect points.

JS/KB VIC 20 Unexp. £5.95

CRAWLER

All M/C version of Centipede

JS VIC 20 Unexp. £5.95

PHARAOH'S TOMB

Once you enter, the only way out is with the aid of a key which unlocks the mystery of the Pharaoh's tomb

KB VIC 20 16K £5.95

THE DUNGEONS

Enter the realms of fantasy with this superb high resolution, multi-colour graphical text adventure. Choose your role as a fighter with armour or a magician with spells to do battle with the fearfull fire breathing RED DRAGON and many other horrific monsters in THE DUNGEONS with 100 rooms, many with ingeneous traps. First of the text adventures that will keep you enthralled and frustrated for a very long time if you use the fast save facility or give up and have a new adventure.

K.B. VIC 20 16K £5.95

KRAZY KONG

An E-XPANDE-D screen, large graphics, rolling barrels, hammer, fireballs, lifts, handbags and umbrellas as you try to rescue the damsel

KB/JS VIC 20 16K £7.90

SLAP DAB

An exciting game based on the arcade game PAINTER which combines fast action with strategy. Giant insects hiding under the old paint surface are released by your paint brush.

KB JS VIC 20 UNEXP £5.95
KB/JS SPECTRUM 16K/48K £4.95

GALACTIC ABDUCTORS

A stunning action packed game which uses all of your TV screen for the superb large animated graphics

JS VIC 20 16K £7.90

MINI KONG
unexpanded

MINI–KONG

For UNEXP from the writer of Krazy Kong comes the equally brilliant Mini-Kong. You will wonder how he managed to cram so much in the unexpanded VIC.
Brilliant multi-colour graphics, expanded screen, lift, rolling barrels, ladders, running score/HI-score and not to forget the hand bag bonus in this all M/C presentation.

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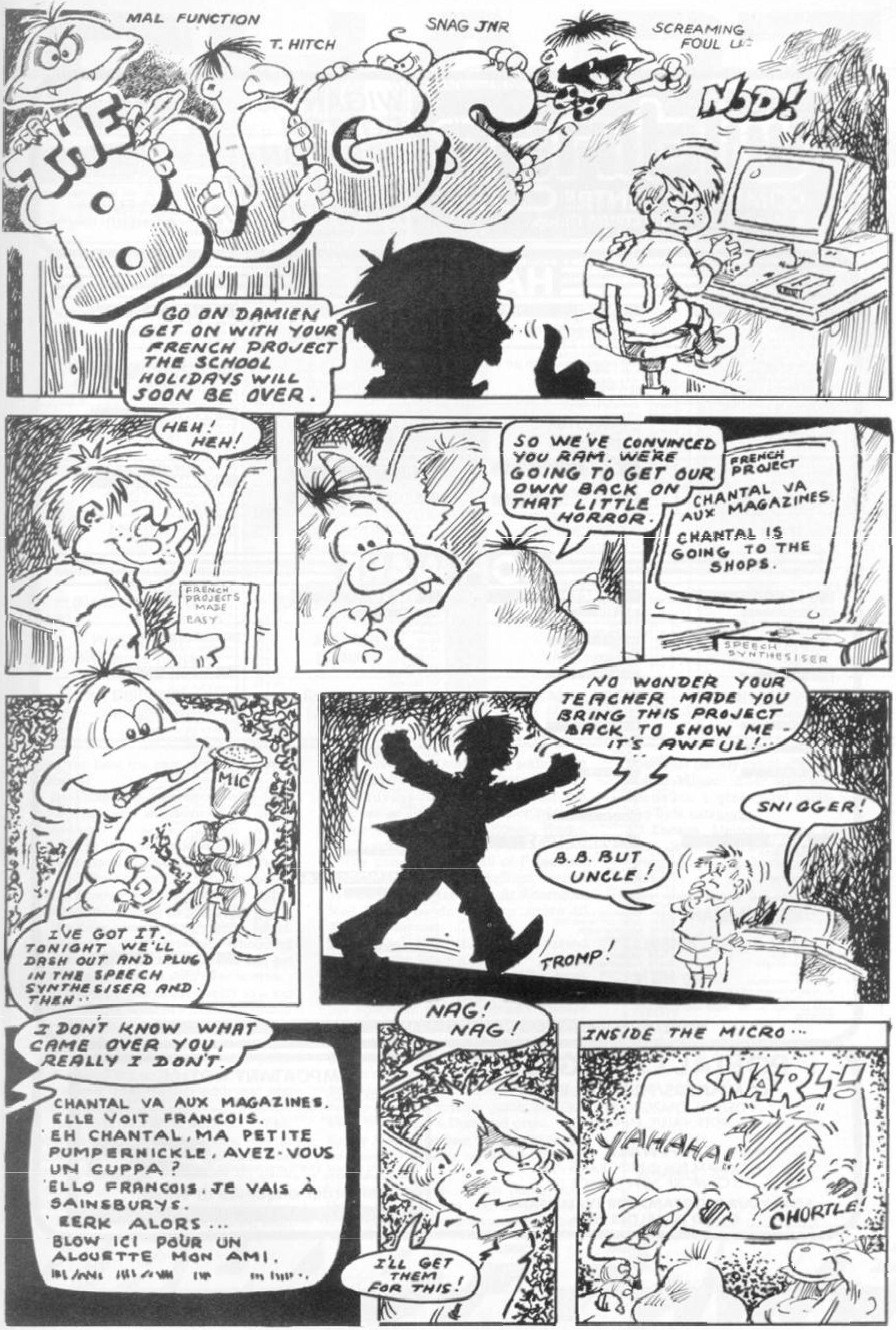
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HALL OF FAME

Can you beat the rest of your street at Arcadia?

Do Planetoids fans sit up and take note when you tell them which wave you're on?

Sounds like you might be due for some national acclaim. The Hall of Fame is *C&VG*'s answer to top computer game scorers who thought they didn't have anything more to prove.

We have chosen nine games which have kept *C&VG* reviewers whooping and wailing deep into the night and set out to keep track of your best scores.

If you think you could qualify as a top scorer simply send in a postcard telling us your high score on one of the games below and giving the name of a witness. We will also need to know which game you scored this on, roughly how long it took and your name, address and phone number.

Next year we'll invite some of the best scorers along to a grand final day to prove their skills, but in the meantime we'll be printing a top five on each machine in every issue of *Computer & Video Games*.

On one game, Violent Universe, send your scores into Quest at the address on the cassette as they have their own way of verifying them. For the rest the address is: Hall of Fame, *Computer & Video Games*, Durrant House, Herbal Hill, London EC1R 5JB.

The games in the Hall of Fame are:

Planetoids, Acornsoft's brilliant version of Defender for the BBC. At Acornsoft, Neil Raine holds the top score of 408,000. Beat that!

Mined Out, Quicksilva's highly-rated game for the Dragon 32.

Arcadia, by Imagine, one of the best-ever sellers and you can enter on either the Spectrum or Vic versions (please tell us which).

Jet-pac, the game which made Ultimate a top name in computing overnight. For Spectrum owners.

Diamond, English Software have high hopes for this mining game and are even putting up a Diamond prize.

Krazy Kong, the best version of Donkey Kong we've seen on the Vic-20 from Anirog.

Violent Universe, a new game from Quest, the company that developed a high score verification system for their Spectrum games mentioned earlier.

Manic Miner, Sheer addiction for the Spectrum, a great new game for the Bug-Byte catalogue.

3D Escape, Malcolm Evans' game for New Generation Software which set new graphics standards on the Sinclair ZX81.

HALL OF FAME

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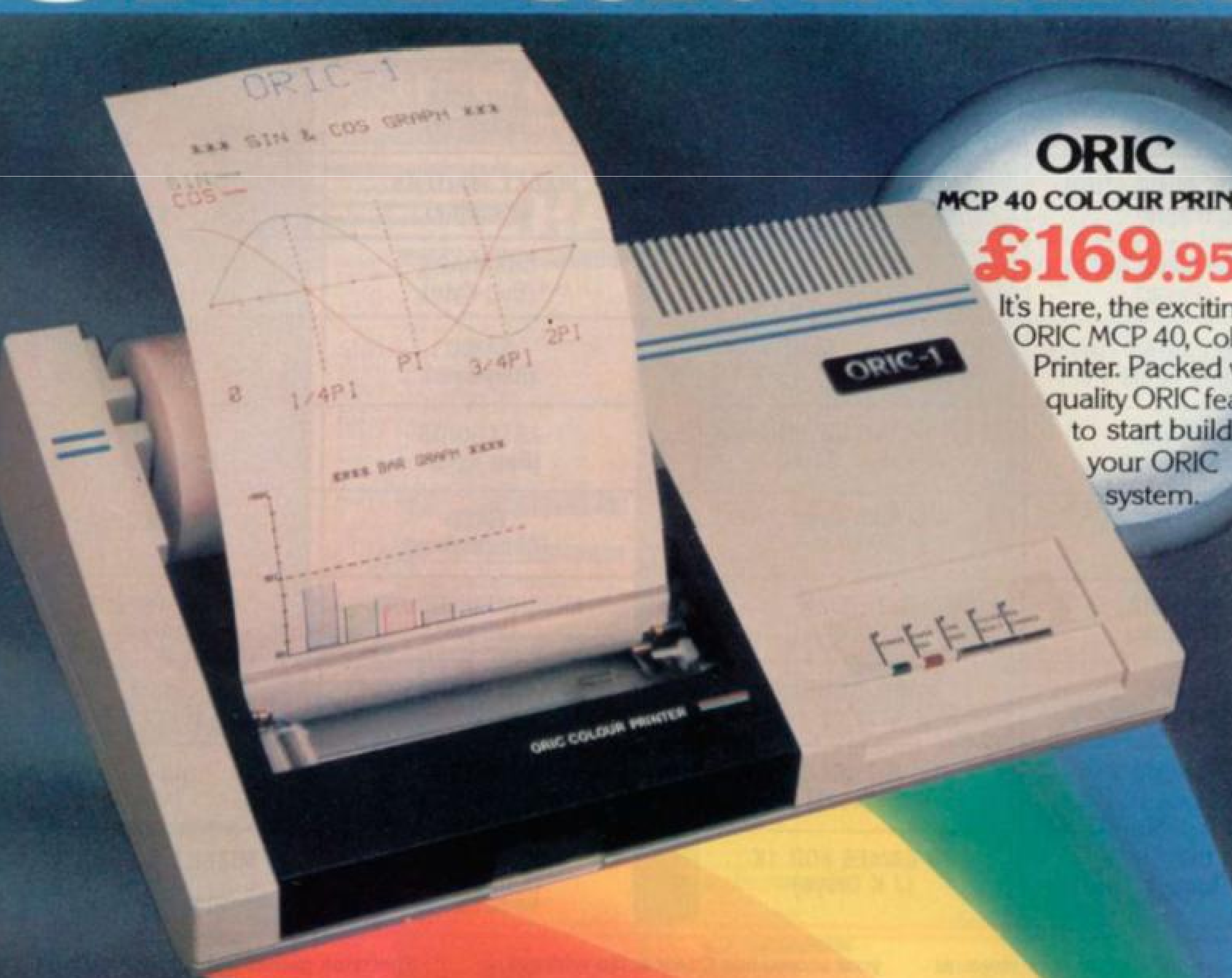

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BY SIMON GOODWIN

RUNS ON AN ATARI 800

STONES of WRATH

THE heavy clouds rolled darkly overhead as Badenoth made his way through the forest, his senses keen, always alert for the approach of danger. Dimly in the distance he could make out the faint orange glow of the spent fireball, as it burnt uselessly against the enchanted wall. The newly formed avenue of scorched, blackened trees at least now gave him a straight path to follow.

But even as he prepared to conjure the swirling vortex that would begin the weakening, a low menacing thunder rumbled from the East; and there, high above the trees, was the unmistakable vile countenance of a swiftly approaching demon! Valdah was proving to be a worthy, if devious, opponent! Badenoth let a curse escape his lips, then raised his hands above him, and began the utterances that would summon the swarm. They would surely destroy the demon — but could he complete the spell in time? With every breath, the nightmare creature loomed nearer . . .

And then the insects were there, climbing higher and higher, spreading out before the invader, and then enveloping it in a blizzard of tiny flapping wings. The threat of the demon was past; but the taste of revenge was sweet on the tongue of Badenoth. He could see the dragon flying out over the wall, its great leathery wings beating slowly. It was heading towards Valdah — the Towers knew already of the Sorcerors' approach, and were using powerful magic to protect the Stones.

Now was the time to strike that retributive blow! Valdah would soon be desperately fending off the awesome dragon; so it was with an evil smile that Badenoth created the elemental, and commanded it to forge East, there hopefully to deliver a fatal blow to the cunning Valdah.

And what if Valdah should fend off this attack, as he had successfully so many times before? Then it would mean the contest would go on, perhaps only finally decided when one of them had penetrated the walls and defeated the ever present Guardian. For to whoever did this went the prize of the Stones, and to him would be given the ultimate power . . .

This mystical game is for two players, each representing a Wizard. They begin in a forest at the top of the screen, and must pass through the forest, penetrate the three enchanted walls and capture either of the Stones, which are behind the final wall.

The game plays in this way: each game turn is made up of two phases; a spell-casting phase and a movement phase. A Wizard will cast spells to penetrate the walls, and to defend himself from the spells cast by his opponent or the Towers. Casting a spell requires energy — the energy remaining to a Wizard is shown at the bottom of the screen next to a picture of him, one red, one blue.

To assist the Wizards in selecting a spell, the six available spells are shown across the bottom of the screen followed by the amount of energy required to cast them.

In phase two, the Wizards can move. In turn, each player will press a cursor arrow key (without holding down the control key) to indicate the direction he wishes to move.

A Wizard will move one place in the direction chosen, provided the way is clear (or if there is a Stones symbol indicated on the display).

There is one alternative to movement available in phase two; by pressing "X" a Wizard is given 50 extra energy points. This energy is taken from his reserve (shown next to his energy. At the start, each Wizard has 500 energy points, with 100 in reserve), but only 5 is deducted. However, a Wizard does not run his reserves down lightly, for it is when his reserves reach zero that he dies; and it is from his reserve that points are deducted when he is affected by a spell.

It is important to keep a high reserves figure in the early stages, for at the end of each turn, the Wizards receive extra energy points equal to 10% of their reserves.

How does a Wizard cast a spell, and how does he choose which one to cast? To cast a spell is simple. When "CAST YOUR SPELL" is displayed the Wizard whose face is lit presses a key between 1 and 6. This indicates which spell you are casting — the spell is shown in the appropriate colour. Then key a grid reference to show what the target point of this spell is to be. For example: keying 5 4 , 1 6 means cast a vortex at point 4,16. Keying 1 1 2 , 9 means cast a demon at point 12,9.

Grid points are numbered around the edges of the screen thus 123456789:1234 . . . Grid references are given across then down. ":" means point 10, and numbers after that mean 11, 12, 13, etc.

If a Wizard doesn't want to cast a spell in any turn, he can either press the space bar as the first entry (pressing the space bar as a later digit is deemed to mean cancel, so that entry can begin afresh), or press 0 followed by a pretend grid reference (to kid the opponent into believing that he is spell casting.

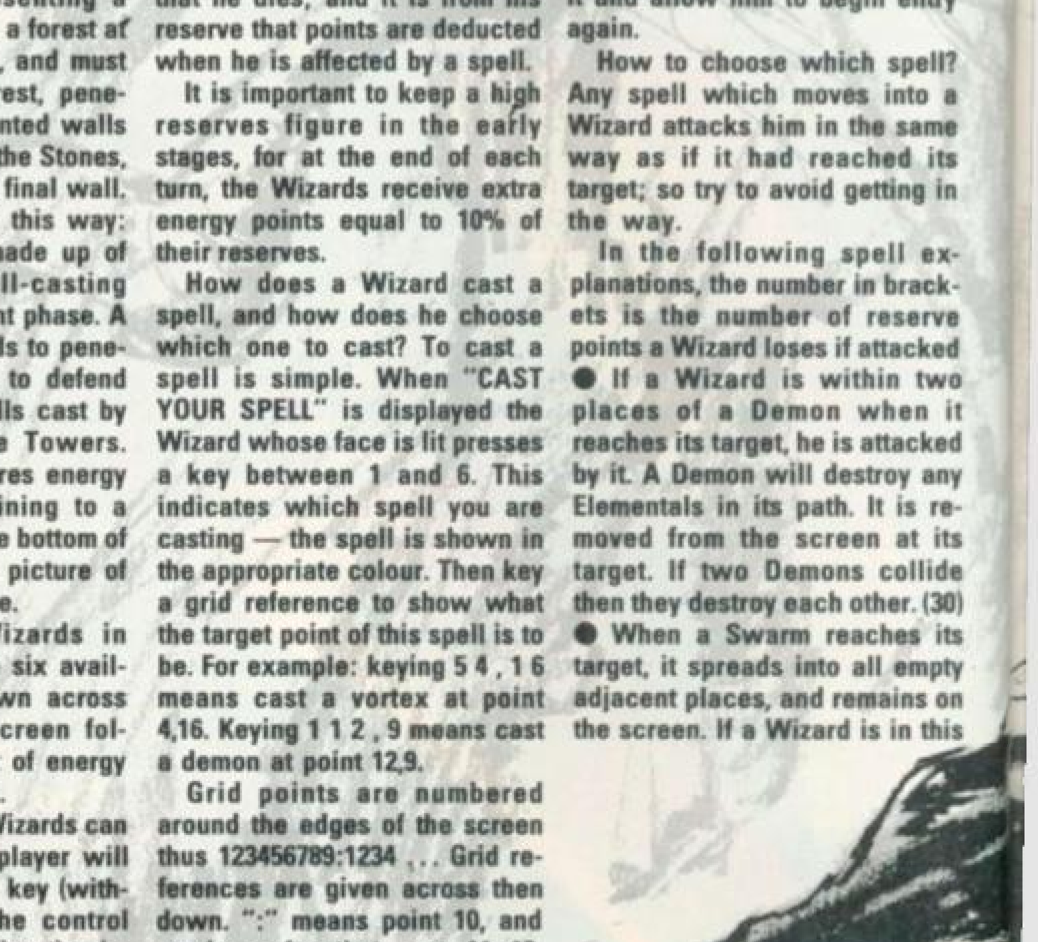
Once the player has done the above, he presses RETURN to confirm what he has entered, or presses the space bar to cancel it and allow him to begin entry again.

How to choose which spell? Any spell which moves into a Wizard attacks him in the same way as if it had reached its target; so try to avoid getting in the way.

In the following spell explanations, the number in brackets is the number of reserve points a Wizard loses if attacked

● If a Wizard is within two places of a Demon when it reaches its target, he is attacked by it. A Demon will destroy any Elementals in its path. It is removed from the screen at its target. If two Demons collide then they destroy each other. (30)

● When a Swarm reaches its target, it spreads into all empty adjacent places, and remains on the screen. If a Wizard is in this



spreading zone, he is attacked. A Swarm destroys any Demons in its path, or that subsequently try to pass through it. (15)

- A Fireball is the only spell to destroy tress. (All spells pass through the forest unhindered.) This is useful to clear a path for the Wizard. A Fireball also destroys any Swarms that it comes into contact with. At its target, it expands like a Swarm, affecting anything adjacent as if it had moved into them. It is then removed from the screen. (25)
- A Shield destroys Fireballs, and spreads into a protective cup shape on reaching its target. It remains on screen. It is also the only spell that has any effect on a Dragon. If the two meet, there is a chance that the Dragon will be destroyed or pick a new target.
- The Vortex is the only spell to affect a wall. Three hits in the same place are needed to form a breach. It destroys any Shields that it contacts. The Vortex is removed at its target, or if it hits a wall or another Vortex. (20)
- The Elemental is useful to hinder your opponent, as it remains on screen at its target, and destroys any Vortices that collide with it. (10)
- The Dragon destroys all spells except the Elemental. Also, when it reaches its target, there is a chance that it will merely pick a new target, and make its way to that one. A Dragon can remain on screen a long time in this way. (50)

Spells are moved in the following sequence: Spells cast by the Towers. Spells cast by the Wizard in Power. Spells cast by the other Wizard.

The Wizard in Power alternates each turn, and is indicated by a Stones symbol at the bottom right of the screen.

A Wizard can have up to six spells active at the same time. An active spell is one which has not yet reached its target.

Finally, be aware that the Towers are unaffected by any spells; and that their spells pass over the walls freely.

Illustration: Jon Davis

Program Notes:

Ensure that your left margin is set to 0 (POKE 82,0) before you type in the program.

The numbers (but not the other symbols) in the print statement on line 5000 are in inverse video.

Many numbers are assigned to variables: eg N1 = 1, N20 = 20 etc. This saves memory. When typing in from the listing it won't matter if you occasionally key say 20 instead of N20 (do it too often and the program will not run in 16K); but avoid accidentally keying say N80 when N80 has not been defined and will therefore equal zero.

There are machine code routines in DATA statements on lines 30, 32, 80, 82, 30000, 30002 and 30100. If the program crashes your machine when you run it, it's likely that you miskeyed on those lines.

The break key is disabled by the last two pokes on line 20. This is because there are interrupts running which do not stop when break is pressed. To abort the program press SYSTEM RESET.

When a Tower casts a spell, it chooses from a list in the DATA statement on line 32650. If you wish to change the probability of spells appearing, or say, want the Towers to cast only Dragons, then these values can be altered; but ensure that 14 numbers in the range 1-7 are present.

It is possible to stop the Towers casting any spells, should you desire a straight Wizard duel. To accomplish this, REM out line 1500, and remove the "NEXT J" statement in line 1505.

```
5 POKE 106,60:GRAPHICS 17:READ N1,N2,N3,
N4,N5,N6,N7,N8,N9,N10,N11,N12,N13,N14,N1
5,N16,N17,N18,N19,N20,N21
10 READ N22,N23,N25,N30,N32,N40,N41,N42,
N43,N44,N48,N50,N100,N128,N129,N162,N500
12 READ N1000,N1370,N1385,N1390,N2000,N5
500,N9000,N9100
15 DATA 1,2,3,4,5,6,7,8,9,10,11,12,13,14
,15,16,17,18,19,20,21,22,23,25,30,32,40,
41,42,43,44,48
16 DATA 50,100,128,129,162,500,1000,1370
,1385,1390,2000,5500,9000,9100,232,56,16
6,120
20 OPEN #N1,N4,N,"K:":SOUND N,55,N4,N10:
FOR J=708 TO J+N3:READ A:POKE J,A:NEXT J
:POKE 16,64:POKE 53774,64
22 POSITION N2,N10:? #N6;"stones of wrat
h!":ADDR=60*256:J=1536
25 READ A:IF A<>-N1 THEN POKE J,A:J=J+N1
:GOTO 25
30 DATA 104,162,0,169,60,133,207,134,206
,169,224,133,205,134,204,32,22,6,32,22,6
,96,161,204,129,206,230,206,208,2
32 DATA 230,207,230,204,208,242,230,205,
165,205,201,226,208,234,169,224,133,205,
96,-1
40 A=USR(1536):POKE 756,60:POKE 1790,N25
45 DIM E(N1),H(N1),K(N1,N2),Q(N1),WX(N1)
,WY(N1),CL(N1),V(N1),DX(N1),DY(N1)
46 DIM SX(N18),SY(N18),S(N19),TX(N18),TY
(N18),SP(N18),SC(N19),CS(N9),SN(N18),SPN
(N13),OH(N1),A(N1)
55 E(N)=N500:E(N1)=N500:H(N)=N100:H(N1)=
N100:OH(N)=H(N):OH(N1)=H(N1):CL(N)=N1:CL
(N1)=N129:SC(N19)=N32
60 FOR J=N TO N18:S(J)=N:SN(J)=N:SP(J)=I
NT(J/N6):NEXT J:S(N19)=N
65 RESTORE 32500:FOR J=N TO N19:READ A:C
OLOR A+160:PLOT J,N:PLOT N,J:PLOT N19,J:
PLOT J,N20:NEXT J
70 FOR J=N1 TO N6:READ A:CS(J)=A:NEXT J
75 FOR J=N TO N13:READ A:SPN(J)=A:NEXT J
:RESTORE 80:J=1600
76 READ A:IF A<>-N1 THEN POKE J,A:J=J+N1
:GOTO 76
80 DATA 72,173,255,6,240,23,201,1,240,27
,201,2,240,31,169,0,141,255,6,169,72,141
,10,212,141,22,208,104,64,169,14,238
82 DATA 255,6,76,85,6,169,220,238,255,6,
76,85,6,169,8,238,255,6,76,85,6,-1
90 A=PEEK(560)+PEEK(561)*256:POKE A+24,1
34:POKE A+N25,134:POKE A+26,134:POKE A+2
7,134
100 POKE 1791,N:POKE 512,64:POKE 513,N6:
RESTORE 32000
```

```
170 FOR J=N TO 119:READ A:POKE ADDR+N8+J
,A:POKE ADDR+N20+N500+J,A:NEXT J:A=ADDR+
N500+N20
180 READ J:IF J=-N1 THEN GOTO N500
190 READ K:POKE A+J,K:GOTO 180
200 HIT=V-N2:A=N19:S(A)=N1:IF V>N41 AND
V<47 THEN HIT=N500:GOTO 285
205 IF V=N162 OR V=N1 OR V=N129 THEN 215
208 GOSUB 400:IF V>N32 AND V<N42 THEN HI
T=V-34
209 IF V>N128 THEN HIT=V-130
215 GOSUB 6800+200*SN(J)
220 W=N1:IF S(J)=N THEN W=W+N1
230 IF S(A)=N THEN W=W+N2
240 ON W GOSUB 255,250,270,275:IF H(N)<N
1 OR H(N1)<N1 THEN EG=N1
250 RETURN
255 IF A=N19 THEN RETURN
257 IF TN=N1 AND SP(J)=N1 AND SP(A)=N TH
EN RETURN
258 IF TN=N3 AND SP(J)=N AND SP(A)=N1 TH
EN RETURN
260 SC(J)=SC(A):IF SX(J)=TX(J) AND SY(J)
=TY(J) THEN IF SN(J)<>N4 AND SN(J)<>N6 T
HEN RETURN
262 SC(A)=S(J):RETURN
270 SC(J)=SC(A):RETURN
275 COLOR SC(A):PLOT SX(J),SY(J):RETURN
285 IF S(J)>N32 AND S(J)<N42 THEN RETURN

287 IF SN(J)<>N5 OR V>N44 THEN S(J)=N:RE
TURN
288 GOTO 215
300 FOR W=N TO N17:IF SX(W)=K THEN 350
310 NEXT W:RETURN
350 IF SY(W)=L THEN S(W)=N:RETURN
360 GOTO 310
400 FOR W=N TO N18:IF S(W)=V THEN 430
410 NEXT W:RETURN
430 IF SX(W)=SX(J) AND SY(W)=SY(J) THEN
A=W:RETURN
440 GOTO 410
500 COLOR N162:FOR J=N1 TO 80:PLOT INT(R
ND(N)*N18+N1),INT(RND(N)*N9+N1):NEXT J
550 COLOR N1:WX(N)=N5:WY(N)=N1:WX(N1)=N1
4:WY(N1)=N1:PLOT WX(N),WY(N):COLOR N129:
PLOT WX(N1),WY(N1)
600 COLOR N42:PLOT N1,N10:DRAWTO N18,N10
:PLOT N1,N15:DRAWTO N18,N15
605 PLOT N1,N19:DRAWTO N18,N19:COLOR 46:
PLOT N7,N20:PLOT N12,N20:COLOR 45:PLOT N
4,N15:PLOT N15,N15
620 J=N18:S(J)=N41:SC(J)=N32:SN(J)=N7:SX
(J)=N9:SY(J)=N17:GOSUB 2700:RESTORE 3000
0:J=1700
630 READ A:IF A<>-N1 THEN POKE J,A:J=J+N
1:GOTO 630
640 FOR J=1680 TO J+N10:READ A:POKE J,A:
NEXT J:A=USR(1680):POKE 54286,192:SOUND
N,N,N,N:GOTO 5000
900 COLOR N:PLOT N,N21:DRAWTO N19,N21:PO
SITION N,N21:? #N6;CHR$(CL(N));E(N);" ";
H(N)
920 POSITION N10,N21:? #N6;CHR$(CL(N1));
E(N1);" ";H(N1):COLOR N14+N128*(TN>N1):P
LOT N19,N21:RETURN
1000 FOR P=N TO N1:GOSUB 10000
1005 POSITION N2,N23:? #N6;"CAST YOUR SP
ELL"
1010 FOR J=N TO N2:K(P,J)=N:NEXT J:CM=N:
GET #N1,A:GOSUB N1390:IF A=N32 THEN 1300
1015 A=A-N48:IF A<N OR A>N6 THEN 1010
1020 IF A=N THEN A=-N1
1025 COLOR CL(P)+N1+A:PLOT N6,N23:X=N8:K
(P,N)=A
```

```
1030 GOSUB N1370:IF A<N OR A>N9 THEN 103
0
1035 K(P,N1)=A:GOSUB N1385
1040 GOSUB N1370:IF A=-N4 THEN CM=N1:GOS
UB N1385:GOTO 1055
1045 IF A<N OR A>N9 THEN 1040
1050 K(P,N1)=K(P,N1)*N10+A:GOSUB N1385
1055 GOSUB N1370:IF A=-N4 AND CM=N THEN
CM=N2:GOSUB N1385:GOTO 1075
1060 IF A<N OR A>N9 THEN 1055
1065 IF CM<>N1 THEN 1055
1070 K(P,N2)=A:GOSUB N1385
1075 GOSUB N1370:IF A=107 AND CM>N THEN
1200
1080 IF A<N OR A>N9 THEN 1075
1085 IF CM=N1 THEN K(P,N2)=K(P,N2)*N10+A
:GOTO 1095
1090 K(P,N2)=A
1095 GOSUB N1385
1100 GOSUB N1370:IF A=107 THEN 1200
1105 IF A<N OR A>N9 THEN 1100
1110 IF CM<>N2 THEN 1100
1115 K(P,N2)=K(P,N2)*N10+A:GOSUB N1385
1120 GOSUB N1370:IF A<>107 THEN 1120
1200 IF K(P,N)=-N1 THEN 1300
1210 IF K(P,N1)<N1 OR K(P,N1)>N18 OR K(P
,N2)<N1 OR K(P,N2)>N19 THEN 1360
1220 IF K(P,N1)=WX(P) AND K(P,N2)=WY(P)
THEN 1360
1230 A(P)=N20:F=P*N6:FOR J=F TO F+N5:IF
S(J)=N THEN A(P)=J:J=N20
1240 NEXT J:IF A(P)=N20 THEN 1360
1250 SN(A(P))=K(P,N):S(A(P))=K(P,N)+N1+C
L(P):Q(P)=A(P):TX(Q(P))=K(P,N1):TY(Q(P))
=K(P,N2)
1255 E(P)=E(P)-CS(K(P,N)):IF E(P)<N1 THE
N H(P)=H(P)+E(P):E(P)=N:IF H(P)<N1 THEN
EG=N1
1260 SX(Q(P))=WX(P):SY(Q(P))=WY(P):SC(Q(
P))=CL(P)
1300 GOSUB N1390:NEXT P:GOSUB 9500:RETUR
N
1360 GOSUB N1390:POSITION N2,N23:? #N6;"
INVALID ENTRY":SOUND N,255,N6,N15:FOR J=
N TO 200:NEXT J
1365 SOUND N,N,N,N:GOSUB
N1390:GOTO 1005
```

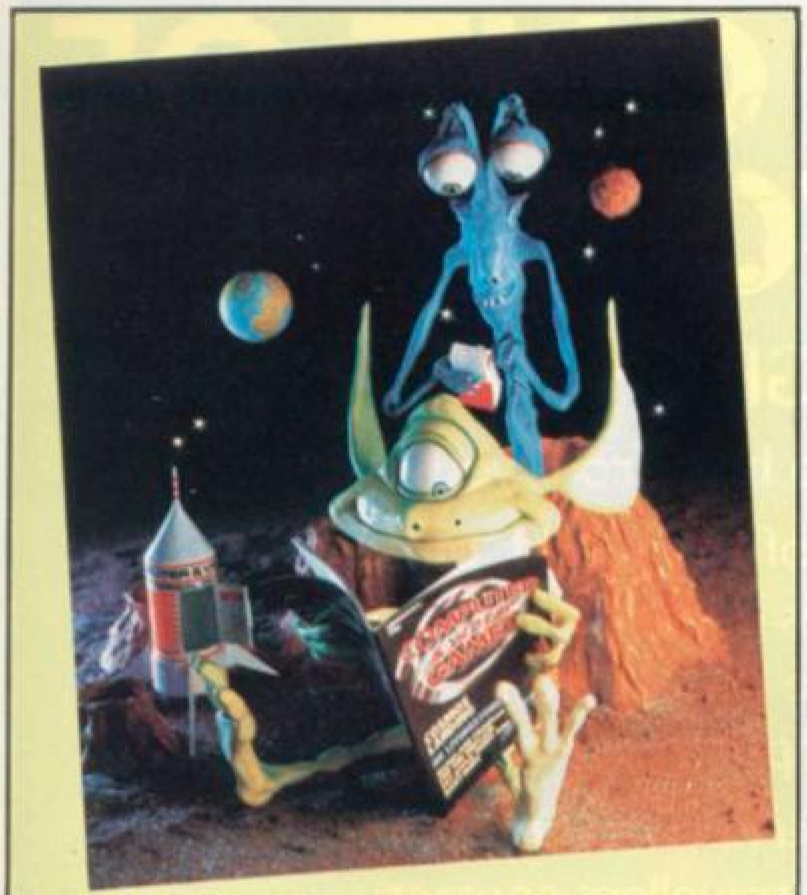
```
1370 GET #N1,A:IF A=N32 THEN GOSUB N1390
:GOSUB 1395:POP :GOTO 1010
1375 A=A-N48:RETURN
1385 A=A+N48:IF A=N44 THEN A=58
1386 COLOR A:PLOT X,N23:X=X+N1:RETURN
1390 COLOR N:PLOT N2,N23:DRAWTO N19,N23:
RETURN
1395 FOR J=N TO N100 STEP N4:SOUND N,J,N
10,N15:NEXT J:SOUND N,N,N,N:RETURN
1500 FOR J=N12 TO N18:IF S(J)>N THEN GOS
UB 1530
1505 NEXT J:IF TN>N1 THEN 1520
1510 FOR J=N TO N11:IF S(J)>N THEN GOSUB
 1530
1512 GOTO 1525
1520 FOR J=N6 TO N11:IF S(J)>N THEN GOSU
B 1530
1522 NEXT J:FOR J=N TO N5:IF S(J)>N THEN
 GOSUB 1530
1525 NEXT J:TN=TN+N1:IF TN=N4 THEN TN=N
1527 RETURN
1530 DX=(TX(J)>SX(J))-(TX(J)<SX(J)):DY=(
TY(J)>SY(J))-(TY(J)<SY(J)):DSX=ABS(TX(J)
-SX(J)):DSY=ABS(TY(J)-SY(J))
1540 COLOR SC(J):PLOT SX(J),SY(J):R=RND(
N):ON (DSX>DSY)-(DSX<DSY)+N2 GOSUB 1600,
1650,1700
1545 LOCATE SX(J),SY(J),V:SC(J)=V:IF V=N
32 THEN HIT=N
1550 IF V<>N32 THEN GOSUB 200:IF S(J)=N
THEN GOSUB 1750:RETURN
1570 IF SX(J)=TX(J) AND SY(J)=TY(J) THEN
 GOSUB 1800:RETURN
1590 COLOR S(J):PLOT SX(J),SY(J):RETURN
1600 SY(J)=SY(J)+DY:IF R>DSX/DSY THEN RE
TURN
1610 SX(J)=SX(J)+DX:RETURN
1650 SY(J)=SY(J)+DY:SX(J)=SX(J)+DX:RETUR
N
1700 SX(J)=SX(J)+DX:IF R>DSY/DSX THEN RE
TURN
1710 SY(J)=SY(J)+DY:RETURN
1750 GOSUB 6100:FOR P=N TO N1:IF H(P)<OH
(P) THEN GOSUB 1880
1760 NEXT P:RETURN
1800 GOSUB 1850:GOSUB N2000+N100*SN(J):I
F H(N)<N1 OR H(N1)<N1 THEN EG=N1
1810 IF SN(J)<>N7 THEN S(J)=N
1815 FOR P=N TO N1:IF H(P)<OH(P) THEN GO
SUB 1880
1820 NEXT P:RETURN
1850 FOR H=N TO N20:SOUND N,N50-H,N10,N1
5:COLOR S(J):PLOT SX(J),SY(J):SOUND N,N,
N,N
1860 COLOR V:PLOT SX(J),SY(J):NEXT H:RET
URN
1880 UH(P)=H(P):FOR H=N TO N12:COLOR CL(
P)+N14:PLOT HX(P),HY(P):SOUND N,H*N20,N1
4,N15
1890 COLOR CL(P):PLOT HX(P),HY(P):NEXT H
:SOUND N,N,N,N:RETURN
2000 COLOR N:PLOT N,N22:DRAWTO N19,N22:P
LOT N,N23:DRAWTO N19,N23:RETURN
2100 FOR H=N TO N1:IF ABS(HX(H)-SX(J))<N
3 AND ABS(HY(H)-SY(J))<N3 THEN H(H)=H(H)
-N30
2110 NEXT H:IF HIT=N6 THEN 2800
2115 RETURN
2200 X=N15:COLOR S(J):FOR K=SX(J)-N1 TO
SX(J)+N1:FOR L=SY(J)-N1 TO SY(J)+N1
2210 LOCATE K,L,V:IF V<>N32 THEN 2230
2220 PLOT K,L:GOTO 2250
2230 GOSUB N9000:IF V=N3 OR V=35 OR V=13
1 THEN GOSUB 300:GOTO 2220
2250 NEXT L:NEXT K:RETURN
```

```
2300 X=N25:SN=N:SOUND N,SN,N8,N15:COLOR
N32:FOR K=SX(J)-N1 TO SX(J)+N1:FOR L=SY(
J)-N1 TO SY(J)+N1
2310 LOCATE K,L,V:IF V=N32 OR V>N162 THE
N 2390
2315 IF V=N162 THEN PLOT K,L:GOTO 2390
2320 GOSUB N9000:IF V=N4 OR V=36 OR V=13
2 THEN PLOT K,L:GOSUB 300
2390 SN=SN+N10:SOUND N,SN,N8,N15:NEXT L:
NEXT K:SOUND N,N,N,N:RETURN
2400 X=N5:COLOR S(J):PLOT SX(J),SY(J):RE
STORE 2450:FOR H=N TO N3:READ DX:READ DY
:LOCATE SX(J)+DX,SY(J)+DY,V
2410 IF V<>N32 THEN GOSUB 2480:GOTO 2430
2420 PLOT SX(J)+DX,SY(J)+DY
2430 NEXT H:RETURN
2450 DATA -1,0,-1,-1,1,0,1,-1
2480 GOSUB N9000:IF V=N3 THEN GOSUB 300
2490 RETURN
2500 IF HIT=N4 THEN 2800
2505 RETURN
2600 COLOR S(J):PLOT SX(J),SY(J):RETURN
2700 IF RND(N)<0.5 AND J<N18 THEN S(J)=N
:RETURN
2710 COLOR N41:PLOT SX(J),SY(J):TX(J)=IN
T(RND(N)*N18+N1):IF J=N18 THEN TY(J)=INT
(RND(N)*N3+N16):RETURN
2715 IF TG=N THEN TY(J)=INT(RND(N)*N9+N1
):RETURN
2720 TY(J)=INT(RND(N)*N4+N11):RETURN
2800 COLOR SC(A):PLOT SX(J),SY(J):RETURN

3000 TG=N:FOR P=N TO N1:GOSUB 10000:POSI
TION N2,N23:? #N6;"WIZARD MOVE NOW":DX(P
)=N:DY(P)=N:V(P)=N
3020 GET #N1,A:IF A=N32 THEN 3200
3030 IF A=88 THEN V(P)=99:GOTO 3200
3040 IF A=45 THEN DY(P)=-N1:GOTO 3100
3050 IF A=61 THEN DY(P)=N1:GOTO 3100
3060 IF A=N43 THEN DX(P)=-N1:GOTO 3100
3070 IF A=N42 THEN DX(P)=N1:GOTO 3100
3080 GOTO 3020
3100 LOCATE HX(P)+DX(P),HY(P)+DY(P),V:V(
P)=V:IF V<>N32 AND V<>46 THEN 3400
3200 NEXT P:GOSUB 9500:RETURN
3300 COLOR CL(P)+N14:PLOT HX(P),HY(P):H(
P)=H(P)-N5:UH(P)=H(P):E(P)=E(P)+N50:IF H
(P)<N1 THEN EG=N1
3310 FOR H=N100 TO N STEP -N2:SOUND N,H,
N12,N15:NEXT H:SOUND N,N,N,N:COLOR CL(P)
:PLOT HX(P),HY(P):RETURN
3400 GOSUB N1390:POSITION N2,N23:? #N6;"
PASSAGE BLOCKED":FOR J=N TO 200:NEXT J:G
OSUB 1390:DX(P)=N:DY(P)=N:GOTO 3020
3600 FOR P=N TO N1:IF V(P)=99 THEN GOSUB
 3300:GOTO 3640
3610 COLOR N32:PLOT HX(P),HY(P):HX(P)=HX
(P)+DX(P):HY(P)=HY(P)+DY(P):COLOR CL(P):
PLOT HX(P),HY(P)
3620 IF V(P)=46 THEN EG=N1:H(P=N)=N
3630 IF HY(P)>N9 THEN TG=TG+N1
3640 NEXT P:RETURN
4500 FOR K=N4 TO N16 STEP N6:GOSUB 4600:
NEXT K:RETURN
4600 F=K-N3:FOR J=K-N4 TO K:IF S(J)=N TH
EN GOSUB 4700:IF F>K-N1 THEN RETURN
4610 F=F+N1:NEXT J:RETURN
4700 IF S(F)=N THEN F=F+(F<K+N1):IF F<K+
N1 THEN 4700
4710 S(J)=S(F):TX(J)=TX(F):TY(J)=TY(F):S
X(J)=SX(F):SY(J)=SY(F):SC(J)=SC(F):SN(J)
=SN(F):S(F)=N:RETURN
5000 GOSUB 900:GOSUB N2000:POSITION N,N2
2:? #N6;"#60$100%50&40'50(40":GOSUB N100
0:GOSUB N2000
```

```
5010 GOSUB 6200:GOSUB N5500:GOSUB 1500:G
OSUB 900
5020 GOSUB N5500:GOSUB 3000:GOSUB N2000:
GOSUB 3600
5030 GOSUB N5500:GOSUB 1500:GOSUB 4500:G
OSUB N5500
5060 FOR P=N TO N1:E(P)=E(P)+INT(H(P)/N1
0):NEXT P:GOTO 5000
5500 IF EG=N THEN RETURN
5505 POP :EG=N:FOR P=N TO N1:IF H(P)<N1
THEN EG=EG+P+N1:H(P)=N
5510 NEXT P:GOSUB 900:GOSUB 5600:POSITIO
N N,N22:ON EG GOTO 5520,5520,5540
5520 ? #N6;"PLAYER ";N3+EG-EG*N2;" WINS"
:GOTO 5580
5540 ? #N6;"THE BATTLE IS DRAWN"
5580 ? #N6;"PLAY AGAIN ?":GET #N1,A:IF A
=89 THEN RUN
5590 POKE 1682,228:POKE 1686,98:A=USR(16
80):GRAPHICS N:POKE 756,224:END
5600 FOR J=255 TO N1 STEP -N2:SOUND N,J,
N10,N15:SOUND N1,J-N1,N14,N15:NEXT J:RET
URN
6100 FOR W=N TO N32 STEP N2:SOUND N,W*N2
,N8,N15:FOR F=N TO N6:NEXT F:SOUND N,N,N
,N:NEXT W:RETURN
6200 FOR J=N12 TO N17:IF S(J)=N THEN 623
0
6220 NEXT J:RETURN
6230 SY(J)=N15:TX(J)=INT(RND(N)*N18+N1):
SX(J)=N4:IF RND(N)<0.5 THEN SX(J)=N15
6250 IF TG=N THEN TY(J)=INT(RND(N)*N9+N1
):GOTO 6270
6260 TY(J)=INT(RND(N)*N4+N11)
6270 SN(J)=SPN(INT(RND(N)*N14)):S(J)=SN(
J)+34:SC(J)=45:RETURN
7000 X=N30:GOSUB N9100:IF HIT=N1 THEN S(
J)=N:S(A)=N
7010 IF HIT=N2 OR HIT=N7 THEN S(J)=N
7020 IF HIT=N6 THEN S(A)=N
7030 RETURN
7200 X=N15:GOSUB N9100:IF HIT=N1 THEN S(
A)=N
7210 IF HIT=N3 THEN S(J)=N
7220 RETURN
7400 X=N25:GOSUB N9100:IF HIT=N2 OR V=N1
62 THEN S(A)=N
7410 IF HIT=N4 OR HIT=N7 THEN S(J)=N
7420 RETURN
7600 X=N5:GOSUB N9100:IF HIT=N3 THEN S(A
)=N
7610 IF HIT=N5 OR HIT=N7 THEN S(J)=N
7620 RETURN
7800 X=N20:GOSUB N9100:IF HIT=N4 THEN S(
A)=N
7810 IF HIT=N5 THEN S(J)=N:S(A)=N
7820 IF HIT=N6 OR HIT=N7 THEN S(J)=N
7830 IF V=N42 THEN COLOR N43:GOTO 7900
7840 IF V=N43 THEN COLOR N44:GOTO 7900
7850 IF V=N44 THEN COLOR N32:GOTO 7900
7860 RETURN
7900 PLOT SX(J),SY(J):S(J)=N:RETURN
8000 X=N10:GOSUB N9100:IF HIT=N5 THEN S(
A)=N
8010 IF HIT=N1 THEN S(J)=N
8020 RETURN
8200 X=N50:GOSUB N9100:IF HIT=N7 THEN S(
J)=N
8210 IF HIT<N6 THEN S(A)=N
8220 IF HIT=N4 THEN 2700
8230 RETURN
9000 FOR T=N TO N1:IF V=CL(T) THEN H(T)=
H(T)-X
```

```
9010 NEXT T:RETURN
9100 FOR T=N TO N1:IF V=CL(T) THEN S(J)=
N:H(T)=H(T)-X
9110 GOTO 9010
9500 FOR J=N15 TO N STEP -0.2:SOUND N,12
1,N10,J:NEXT J:RETURN
10000 COLOR N:PLOT N,N23:SOUND N,N100,N1
0,N15:FOR K=N TO N5:NEXT K
10002 COLOR CL(P):PLOT N,N23:SOUND N,N,N
,N:FOR K=N TO N5:NEXT K:RETURN
30000 DATA 216,206,254,6,173,254,6,240,8
,169,0,141,255,6,76,98,228,169,25,141,25
4,6,173,244,2,201,60,240,8,169,60
30002 DATA 141,244,2,76,173,6,169,62,141
,244,2,76,173,6,-1
30100 DATA 104,162,6,169,7,160,164,32,92
,228,96
32000 DATH 0,254,186,146,238,254,68,124
32010 DATA 0,60,126,126,126,90,24,60
32020 DATA 0,68,56,124,84,108,124,56
32030 DATA 110,183,220,117,183,235,222,1
03
32040 DATA 2,72,43,36,152,24,24,24
32050 DATA 0,153,219,126,126,60,60,24
32060 DATH 36,66,153,37,69,73,34,156
32070 DATA 238,170,56,84,124,124,40,108
32080 DATA 0,5,78,236,125,63,102,136
32090 DATA 129,153,153,255,255,255,255,2
55
32100 DATA 0,0,145,185,255,253,223,255
32110 DATA 0,0,0,0,16,153,223,251
32120 DATA 0,24,24,60,60,126,126,255
32130 DATA 0,64,24,60,60,24,26,24
32140 DATA 0,254,254,254,254,198,68,124
32300 DATA 56,108,57,108,59,124,60,84,32
,137,33,0,34,74,35,164,36,24
32305 DATA 24,93,25,207,26,251,27,166,28
,122,29,221,30,183,31,110
32310 DATA 48,132,49,50,50,73,51,132,52,
164,53,153,54,66,55,60,105,2,110,88,-1
32500 DATA 16,17,18,19,20,21,22,23,24,25
,26,17,18,19,20,21,22,23,24,25
32600 DATA 60,100,50,40,50,40
32650 DATA 1,1,1,2,2,3,3,3,4,5,6,6,6,7
```



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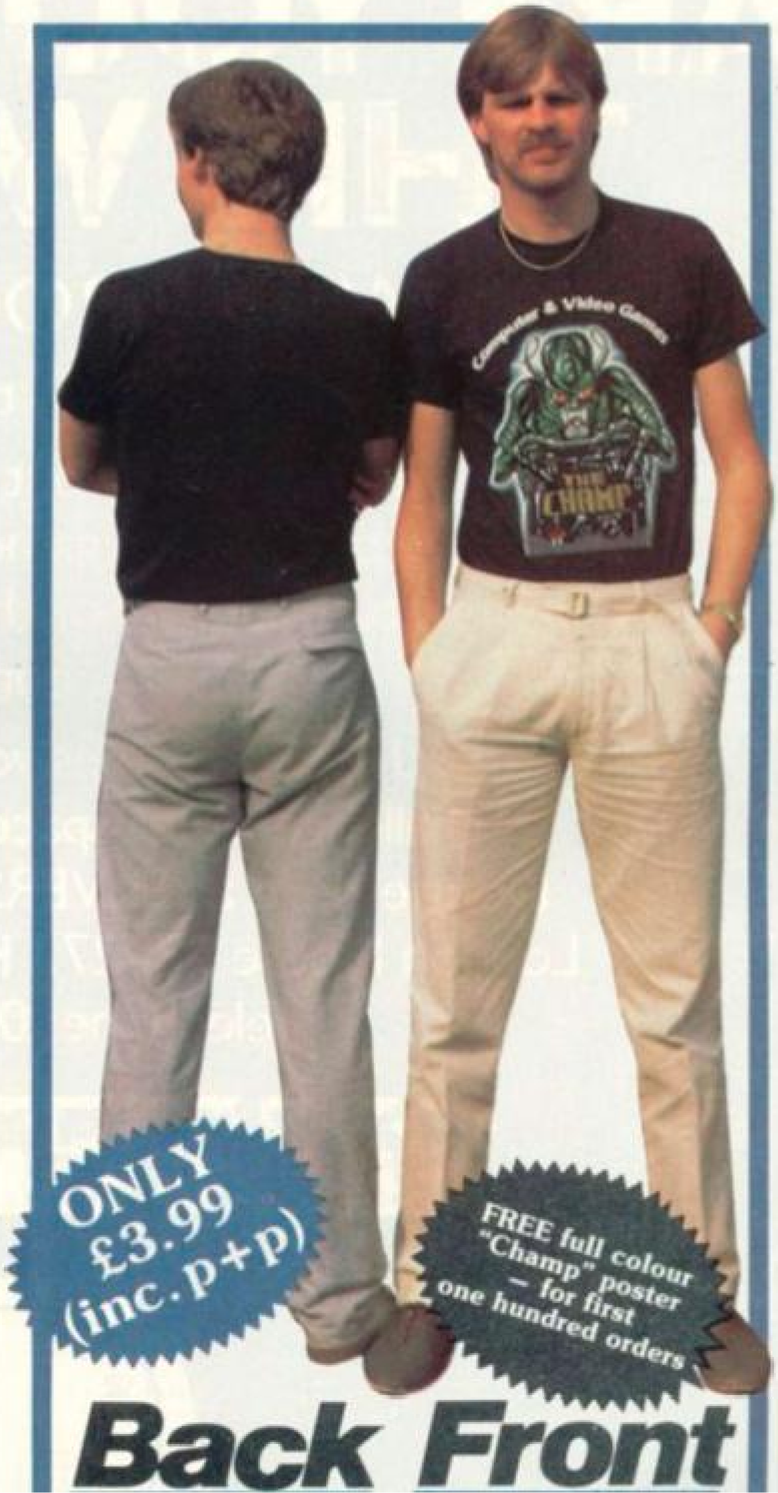

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SILVERSOFT

Announcing more exciting programs for the BBC.

Acornsoft is the software division of Acorn Computers, the company that designed and built the BBC Microcomputer. Here are four more exciting programs, all designed to get the most from your BBC Micro.

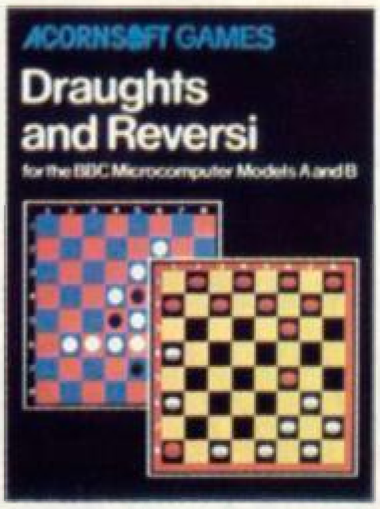
Magic Garden (£9.95) is a cassette based on Shirley Conran's successful book. It's a problem-solving program which provides the complete beginner with instant answers to the questions of what to plant and where. Simply tell the computer whether you prefer a shrub or a flower, the type of soil, light and shade conditions and required flowering time and the computer will come up with a selection of possible plants.

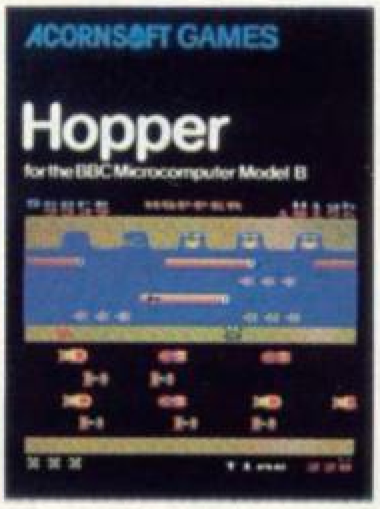
Draughts & Reversi (£9.95) is a cassette containing two traditional board games for you to play against the computer. Both give a graphic display of the board on the screen and you can enter your moves with either keyboard or joystick. The games can be played at varying levels of difficulty and on the higher levels you will find the computer to be a very worthy adversary.

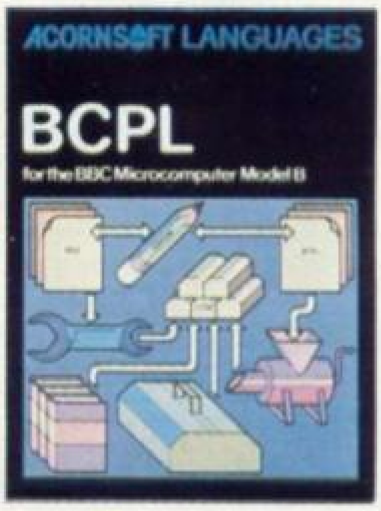
Hopper (£9.95) is a game on cassette which can be played with either keyboard or joysticks. Hop the frog across the busy motorway trying to avoid four lanes of fast-moving traffic. To get across the river to the frog's lair you must leap on to the logs and turtles' backs, but beware of the diving turtles, the crocodile and the snake.

BCPL (£99.65) is a flexible modern structured language that's very easy to learn. The package consists of a BCPL language ROM, a 40/80 disc and a 450 page User Guide. The disc contains the BCPL Computer, a Screen Editor and a 6502 Assembler. BCPL is particularly good at handling Input and Output and is ideal for writing utility programs and to develop games and commercial packages.

ACORNSOFT
Shirley Conran's Magic Garden
for the BBC Microcomputer Model B







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ACORNSOFT

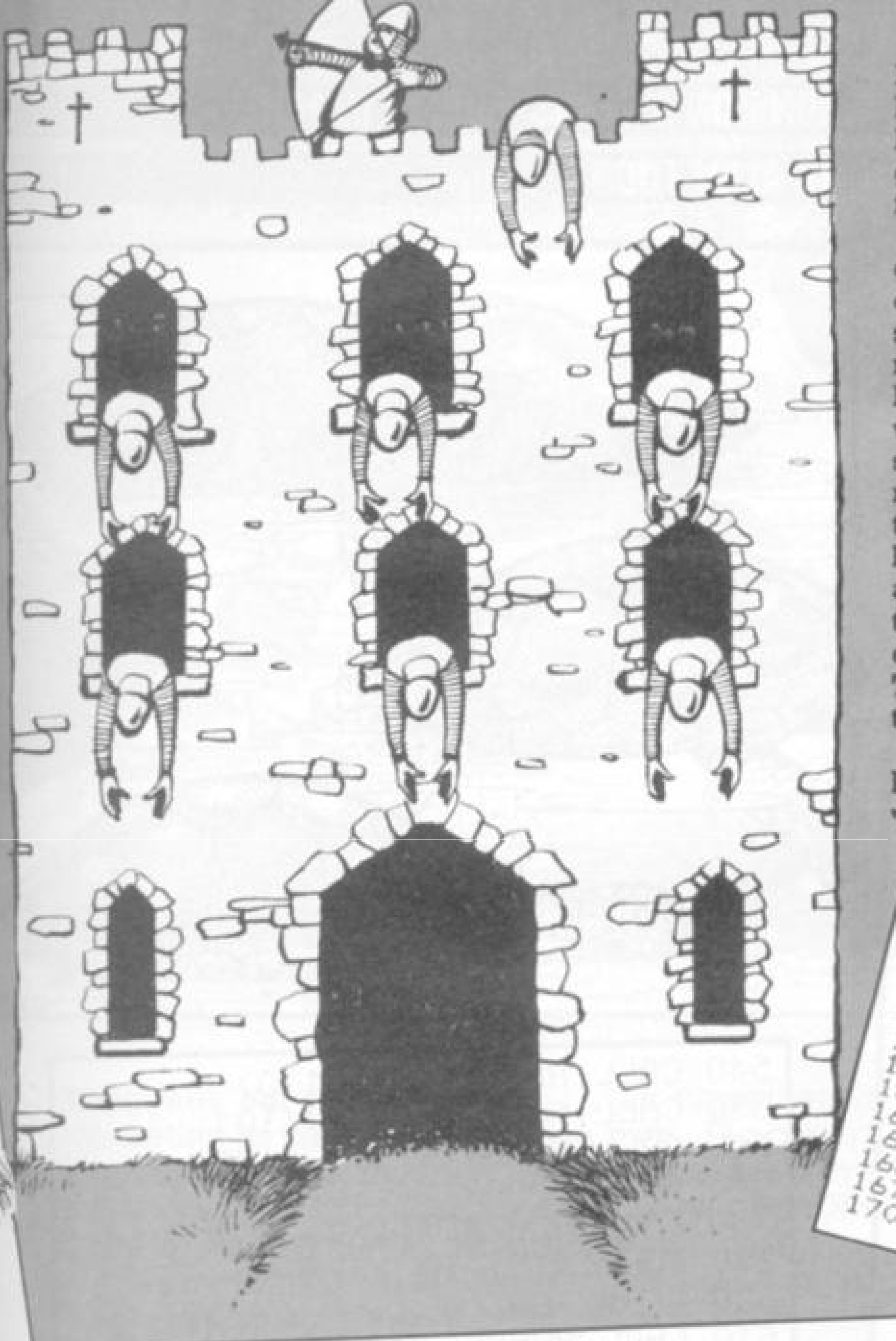
BY MATTHEW MICKLEBURGH

RUNS ON A SHARP MZ80K IN 4K

```
10 REM  * * A S S A U L T * *
20 REM  * COPYRIGHT *
21 REM * D.BIRD *
22 REM * M.D.MICKLEBURGH *
30 REM
40 CLR:POKE10167,1:REM [REMOVES PEEK PROTECT TO ALLOW PEEK(17828)]
89 REM  * * INSTRUCTIONS * *
90 ND=1
100 PRINT"▣  DO YOU WANT INSTRUCTIONS ?"
110 GETXY$:IFXY$="Y"THEN130
120 IFXY$="N"THEN190
125 GOTO110
130 PRINT"▣
140 PRINT"                    ASSAULT"
150 PRINT"⊞⊞YOU ARE HOLDING SIEGE ON A CASTLE AND"
160 PRINT"HAVE TO GET INSIDE."
170 PRINT"⊞⊞USE THE KEYS AROUND THE LETTER 'S' TO"
180 PRINT"MOVE YOUR 'SIGHT' AND 'S' TO FIRE YOUR  WEAPON."
190 PRINT"⊞⊞⊞ * * *    YOU HAVE 30 SECONDS. * * *"
200 PRINT"⊞⊞⊞          SELECT YOUR RATING (1-9)"
210 GETQ$:IFQ$=""THEN210
220 ND=VAL(Q$):IFND=0THEN210
889 REM * * VARIABLES * *
890 DIMM(21),FM(3)
900 FORL=0TO20
910 READM(L)
920 NEXT
1000 DIM FM(3)
1010 FM(0)=202:FM(1)=204:FM(2)=205:FM(3)=203
1020 FR=74
1030 B=0:TT=0:TEMPO 7
1040 M$=" MAN":TI$="000000"
1050 PRINT"▣"
1060 GOSUB1710
1070 GOSUB1320
1080 D=53744:X=PEEK(D)
1090 POKED,FR
1099 REM * * THE MAIN LOOP * *
1100 GETA$:A$=CHR$(PEEK(17828))
1105 IFA$="Z"THENB=39
1110 IFA$="D"THENB=1
1115 IFA$="Q"THENB=-41
1120 IFA$="X"THENB=40
1125 IFA$="E"THENB=-39
1130 IFA$="A"THENB=-1
1135 IFA$="C"THENB=41
1140 IFA$="W"THENB=-40
1145 IFA$=""THENB=0
1160 IFA$="S"THENGOSUB1250
1170 IF(A$="S")*(X=202)THENGOSUB1440
1180 POKED,X
1190 D=D+B:IF(D<53248)+(D>54247)THEND=D-B
1195 X=PEEK(D)
1200 IFX=0THENFR=71
1210 IFX<>0THENFR=74
1220 POKED,FR:IFVAL(TI$)>100THENGOTO2090
```

ASSAULT

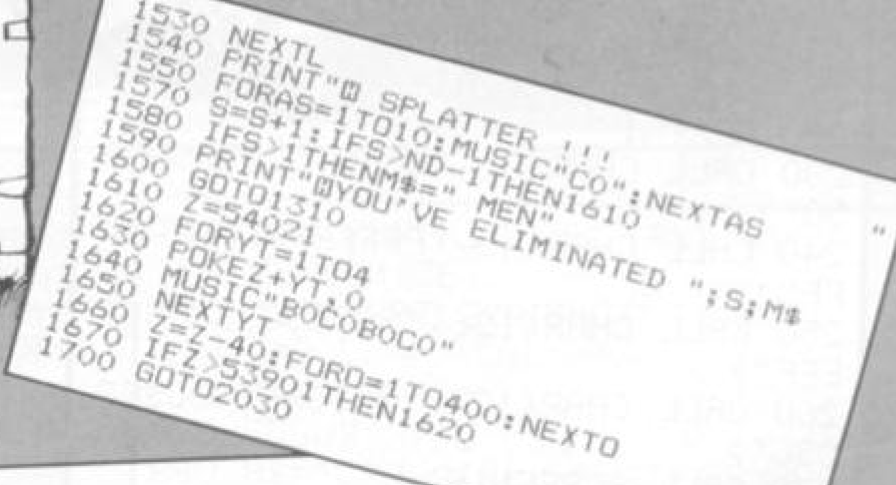
```
1230 GOSUP1300
1240 GOTO1100
1249 REM * * THE EXPLOSION * *
1250 FORTV=1TO10
1260 POKED,166:POKED,X
1270 MUSIC"A0B0C0"
1280 NEXTTV
1290 RETURN
1299 REM * * FIND A NEW PLACE FOR THE MAN * *
1300 K=K+1:IFK<PTHENRETURN
1310 POKET,F
1320 K=0:P=INT(RND(1)*20)+20
1330 R=INT(RND(1)*22)
1340 T=M(R)
1380 IFT=DTHEN1330
1385 IF(X=202)*(D<>T)THENX=F
1390 F=PEEK(T)
1400 IFF=202THENPOKET,F:GOTO1330
1410 POKET,202:USR(62)
1430 RETURN
1439 REM * * FALLING MAN * *
1440 X=F:POKED,X
1450 H=D+40:G=0
1460 FORL=1TO20
1470 J=PEEK(H)
1480 G=G+1:IFG=4THENG=0
1490 POKEH,FM(G):USR(62)
1500 IFH>54045THEN1540
1502 IFH=53701THENPOKEH,67:GOTO1540
1503 IFH=53758THENPOKEH,215:GOTO1540
1510 POKEH,J:H=H+40
1520 PRINT"▣ AAARRRGGGHH.......          "
```



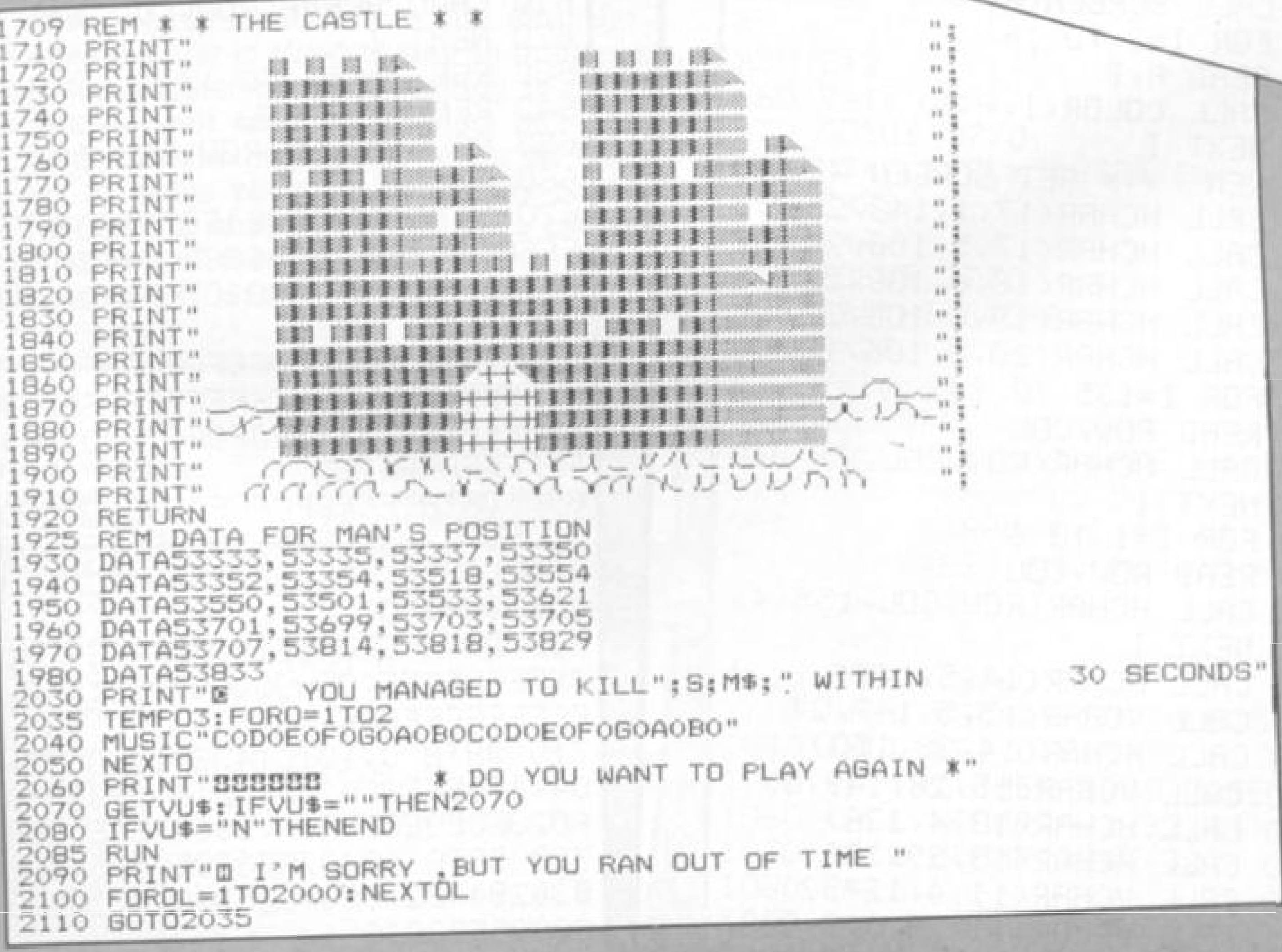
In days of old when knights were bold they just loved to have a battle. And when a fire-breathing Dragon wasn't available the next best thing was to go and lay siege to your next-door neighbours' castle for a few weeks.

Taking along your loyal retainers and trusty rock-catapult you'd trudge off and pitch camp outside the castle and wait for the poor chap inside to give-up or start eating rats. You don't have to sit around for months, braving all the elements. Your siege will last just 30 seconds! And if you fail to win the castle within that time it's back to Dragon hunting. You'll see a castle with defenders appearing on the battlements and at windows. You are armed with your trusty catapult and have to fire at the defenders in a bid to wipe them all out. If you manage to knock out all the defenders within the 30 second time limit then the castle is conquered. You have to be quick on the draw as the defenders move about rapidly. The number of defenders is governed by the difficulty level you chose at the start of each game.

You aim the catapult by moving the sight with keys Q, W, E, A, D, Z, X and C. The weapon is fired using the S key.



```
1530 NEXTL
1540 PRINT"▣ SPLATTER !!!                                              "
1550 FORAS=1TO10:MUSIC"CO":NEXTAS
1570 S=S+1:IFS>ND-1THEN1610
1580 IFS>1THENM$=" MEN"
1590 PRINT"▣YOU'VE ELIMINATED ";S;M$
1600 GOTO1310
1610 Z=54021
1620 FORYT=1TO4
1630 POKEZ+YT,0
1640 MUSIC"BOCOBOCO"
1650 NEXTYT
1660 Z=Z-40:FORO=1TO400:NEXTO
1670 IFZ>53901THEN1620
1700 GOTO2030
```

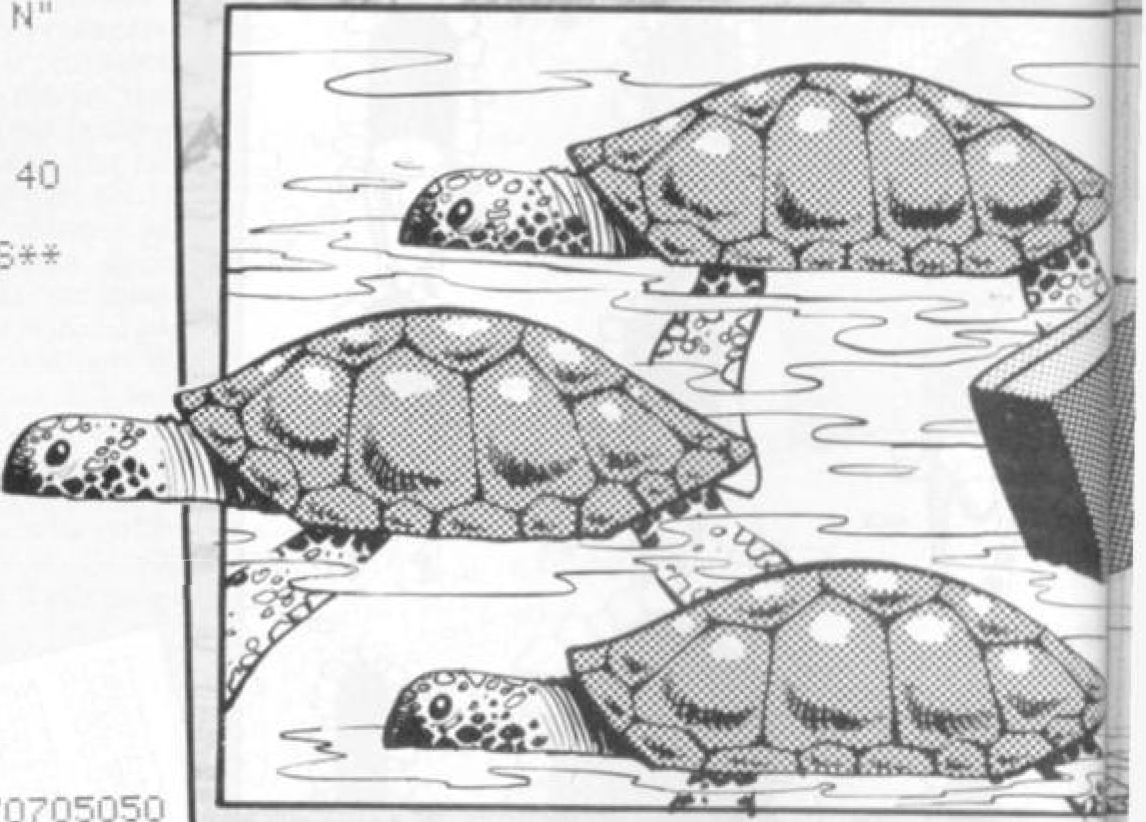


```
1709 REM * * THE CASTLE * *
1710 PRINT"
1720 PRINT"
1730 PRINT"
1740 PRINT"
1750 PRINT"
1760 PRINT"
1770 PRINT"
1780 PRINT"
1790 PRINT"
1800 PRINT"
1810 PRINT"
1820 PRINT"
1830 PRINT"
1840 PRINT"
1850 PRINT"
1860 PRINT"
1870 PRINT"
1880 PRINT"
1890 PRINT"
1900 PRINT"
1910 PRINT"
1920 RETURN
1925 REM DATA FOR MAN'S POSITION
1930 DATA53333,53335,53337,53350
1940 DATA53352,53354,53518,53554
1950 DATA53550,53501,53533,53621
1960 DATA53701,53699,53703,53705
1970 DATA53707,53814,53818,53829
1980 DATA53833
2030 PRINT"▣    YOU MANAGED TO KILL";S;M$;" WITHIN           30 SECONDS"
2035 TEMPO3:FORO=1TO2
2040 MUSIC"CODOEOFOGOAOBOCODOEOFOGOAOBO"
2050 NEXTO
2060 PRINT"▣▣▣▣▣▣       * DO YOU WANT TO PLAY AGAIN *"
2070 GETVU$:IFVU$=""THEN2070
2080 IFVU$="N"THENEND
2085 RUN
2090 PRINT"▣ I'M SORRY ,BUT YOU RAN OUT OF TIME "
2100 FOROL=1TO2000:NEXTOL
2110 GOTO2035
```

Illustration: Terry Rogers

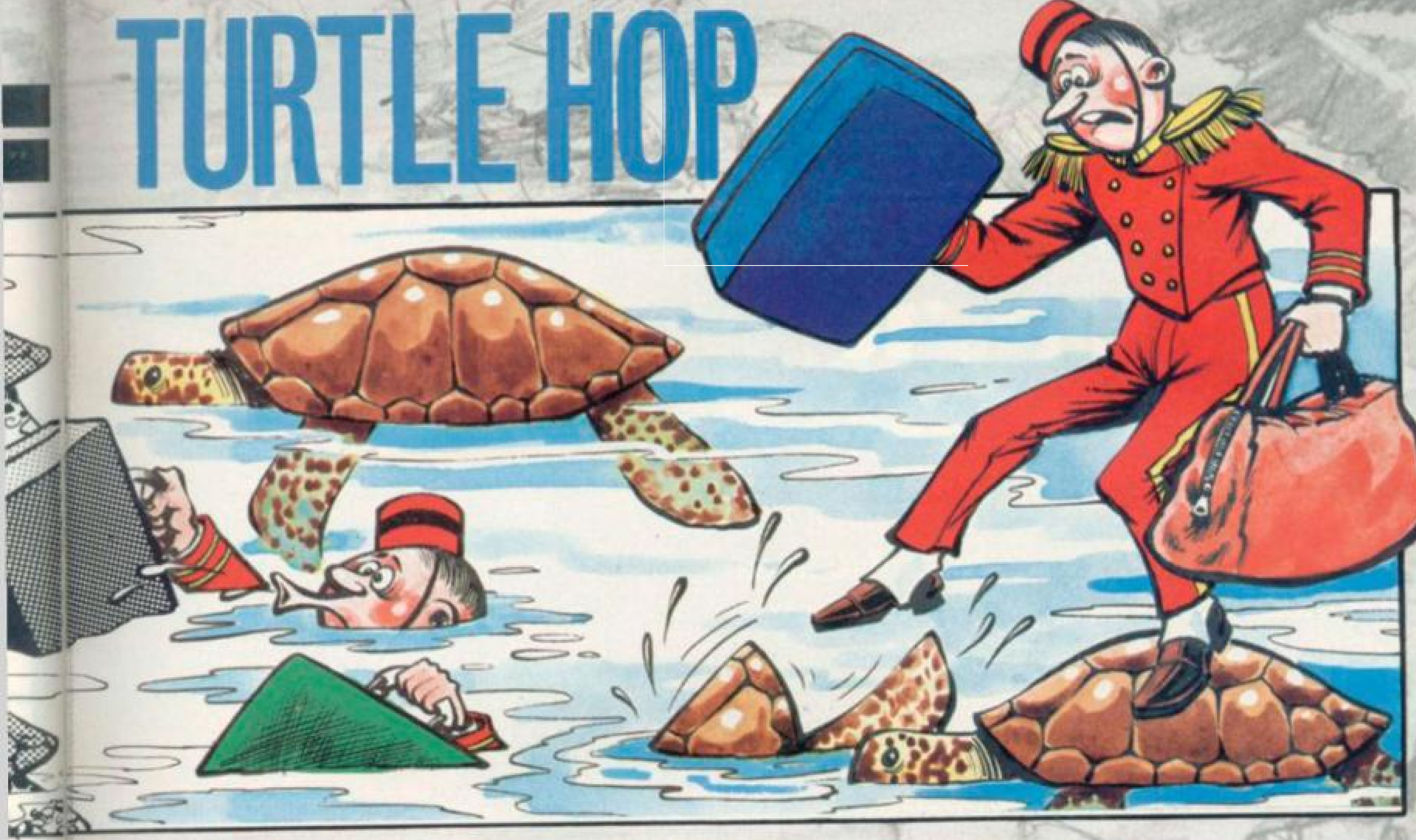
RUNS ON A TEXAS TI99/4A IN 16K

BY ALAN TODD



```
10 CALL CLEAR
20 PRINT "          TURTLE HOP":"
          **********"::::::
30 PRINT "DO YOU REQUIRE INSTRUC
TIONS?"::"            Y OR N"
40 CALL KEY(0,K,S)
50 IF S=0 THEN 40
60 IF K=89 THEN 3830
70 IF K=78 THEN 4030 ELSE 40
80 CALL CLEAR
90 REM **DEFINE CHARACTERS**
100 RESTORE 670
110 FOR I=147 TO 159
120 READ A$
130 CALL CHAR(I,A$)
140 NEXT I
150 FOR I=135 TO 143
160 READ A$
170 CALL CHAR(I,A$)
180 NEXT I
190 FOR I=106 TO 117
200 READ A$
210 CALL CHAR(I,A$)
220 NEXT I
230 CALL CHAR(35,"60407C70705050
50")
240 CALL CHAR(40,"FFFFFFFFFFFFFF
FF")
250 CALL CHAR(126,"3C3C3C3C3C7
EFF")
260 CALL CHAR(127,"3C3C3C3C3C3
C3C")
270 CALL SCREEN(6)
280 FOR I=2 TO 16
290 READ A,B
300 CALL COLOR(I,A,B)
310 NEXT I
320 REM  *** SET SCREEN ***
330 CALL HCHAR(17,1,143,256)
340 CALL HCHAR(17,5,106,24)
350 CALL HCHAR(18,6,106,22)
360 CALL HCHAR(19,6,106,22)
370 CALL HCHAR(20,8,106,18)
380 FOR I=135 TO 142
390 READ ROW,COL
400 CALL HCHAR(ROW,COL,I)
410 NEXT I
420 FOR I=1 TO 6
430 READ ROW,COL
440 CALL HCHAR(ROW,COL,155,4)
450 NEXT I
460 CALL HCHAR(14,5,148)
470 CALL VCHAR(15,5,147,2)
480 CALL HCHAR(14,28,150)
490 CALL VCHAR(15,28,149,2)
500 CALL HCHAR(13,4,126)
510 CALL HCHAR(13,29,126)
520 CALL VCHAR(11,4,127,2)
530 CALL VCHAR(11,29,127,2)
540 CALL HCHAR(17,9,110)
550 CALL HCHAR(17,14,110)
560 CALL HCHAR(17,19,110)
570 CALL HCHAR(17,24,110)
580 CALL HCHAR(1,1,40,96)
590 FOR I=151 TO 159
600 READ ROW,COL
610 CALL HCHAR(ROW,COL,I)
620 NEXT I
630 FOR I=151 TO 159
640 READ ROW,COL
650 CALL HCHAR(ROW,COL,I)
660 NEXT I
670 DATA FE9EC3E1F0781C08,F8FCFE
FEFFE3F9FC,7F79C3870F1E3820,1F3F
7F7FFFC79F3F,0001070F1F3F7F7F,07
FFFFFFFFFFFFFF
680 DATA 80C0F0FCFCFEFFFF,7FFFFF
FFFFFFFF7F,FFFFFFFFFFFFFFFF,FFFE
FFFFFFFFFEFE,3F0F0F07070301,FFFF
FFFFFFFFFF7E
690 DATA FCF8FCFCF0C08,000000000
0C0F0FC,80E0F0FCFFFFFFFF,F0F0F8F
8FCFEFFFF,008080C0C0C0E0E0.00000
10103030707
700 DATA 0F0F1F1F3F7F7FFF,01070F
3FFFFFFFFF,0000000000031F7F,FFFF
FFFFFFFFFFFF
710 DATA 0,1C1C142241,203C2,043C
04,1C3EFF3C42,010E1E3D38305090,0
6023E0E0E0A0A0A,0602FECE0E0A0A0A
720 DATA 60407F737050505,33233C3
838284482,0C043E5D1C142241,00000
00000592A1C
```

TURTLE HOP



Meanwhile out in the jungle . . . an expedition is attempting to cross a fast flowing river. The porters have found that the best way to carry the expedition's provisions and equipment across is to hop over the backs of friendly turtles swimming in the river.

However, although the turtles don't mind being used as stepping stones they do go get peckish from time to time — and may decide to dive down for a fish just when a porter is about to step on it. Once on the other side another porter is waiting to collect your parcels — well most of the time he's there anyway. Sometimes he may decide to nip off too — leaving you to dodge about on the turtles until he returns! There are several skill levels and a constant display on screen of the high score and number of successful crossings made . . . don't get your feet wet!

Variables:

Z: row of Ms
C: col of main character.
G: main character.
F: col of first fish.
HS: high score.
V: col of M$
R: row of main characters.
SK: skill level.
CR$: number of crossings.
FF: col of second fish.

```
730 DATA 16,2,2,16,2,16,2,16,2,1
6,2,16,2,16,1,1,2,5,2,6,11,6,10,
5,10,5,3,6,3,6
740 DATA 20,7,20,6,19,5,18,5,18,
28,19,28,20,27,20,26
750 DATA 14,1,15,1,16,1,14,29,15
,29,16,29
760 DATA 8,3,8,4,8,5,9,3,9,4,9,5
,10,3,10,4,10,5
770 DATA 8,28,8,29,8,30,9,28,9,2
9,9,30,10,28,10,29,10,30
```

```
780 DEF RAN(X)=INT(X*RND)+1
790 RANDOMIZE
800 M$="TURTLE(HOP"
810 Z=2
820 V=3
830 GOSUB 3770
840 M$="CROSSINGS="&STR$(CRS)&"(
"
850 Z=2
860 V=17
870 GOSUB 3770
880 M$="LEVEL="&STR$(SK)
890 Z=23
900 V=4
910 GOSUB 3770
920 M$="HI(SCORE="&STR$(HS)
930 Z=23
940 V=18
950 GOSUB 3770
960 REM  *** THE GAME ***
970 CALL HCHAR(13,5,115)
980 CALL HCHAR(4,1,40,64)
990 M$="PRESS(ANY(KEY(TO(PLAY"
1000 Z=4
1010 V=5
1020 GOSUB 3760
1030 CALL SOUND(-50,2000,0)
1040 CALL KEY(0,K,S)
1050 IF S=1 THEN 1060 ELSE 1040
1060 CALL HCHAR(4,1,32,64)
1070 CALL HCHAR(13,5,32)
1080 R=13
1090 C=6
1100 CALL HCHAR(R,C,115)
```

Illustration: Jon Davis and Terry Rogers

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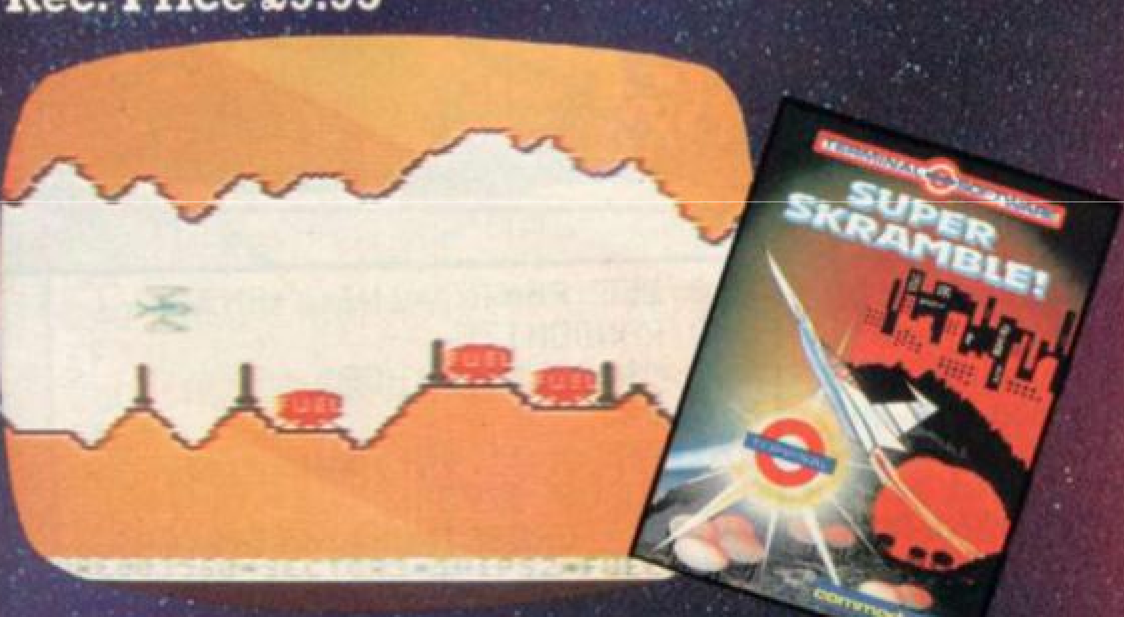
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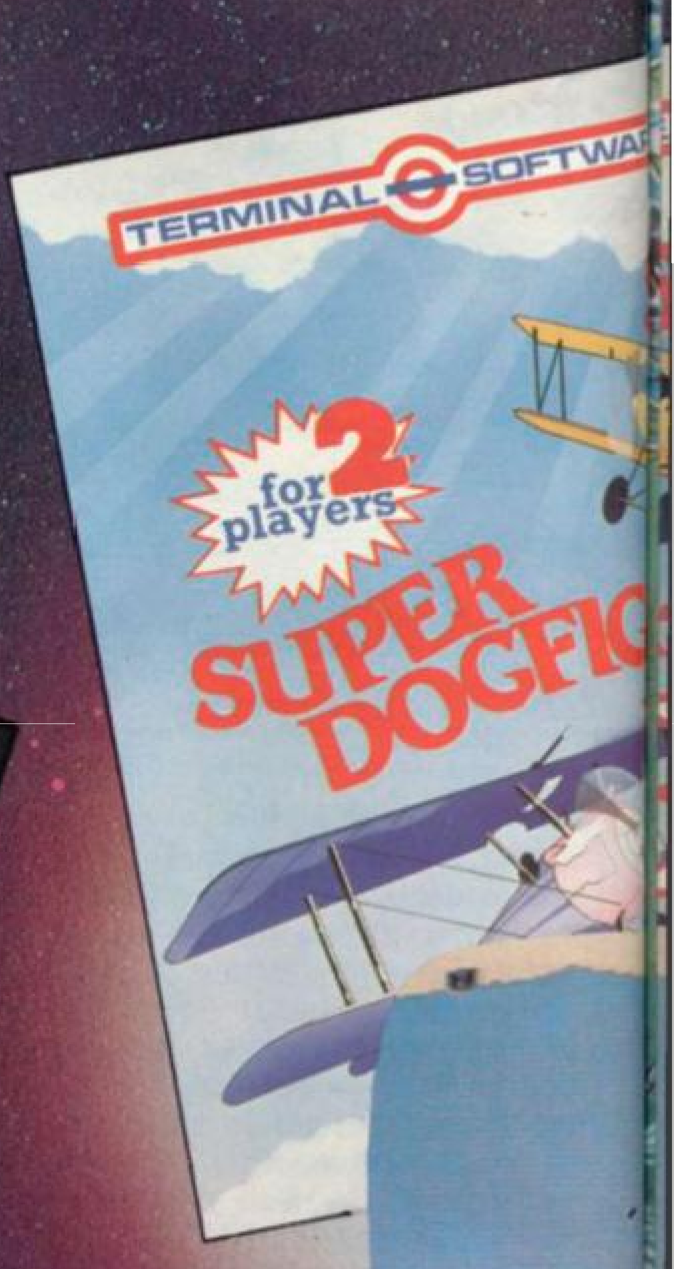
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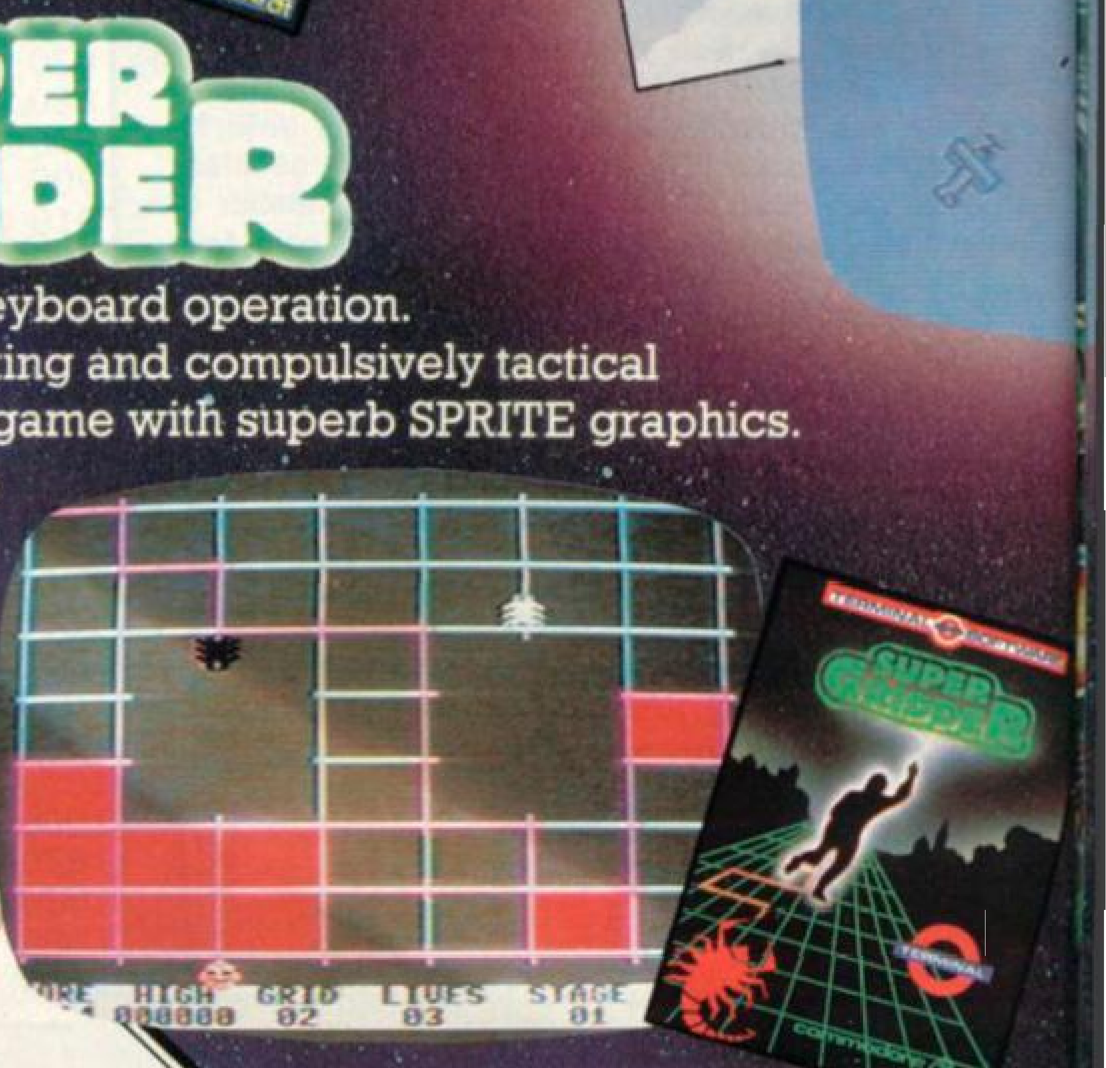
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```
1110 IF R=16 THEN 1160
1120 C=C+1
1130 R=R+1
1140 CALL HCHAR(R-1,C-1,32)
1150 GOTO 1100
1160 CALL SOUND(-50,C*30,0)
1170 CALL KEY(0,K,S)
1180 IF K=68 THEN 1210
1190 IF K=83 THEN 1690 ELSE 1170
1200 REM   *** RIGHT ***
1210 ON SK GOSUB 2720,2590,2590
1220 CALL GCHAR(R,C,G)
1230 CALL HCHAR(R,C,32)
1240 C=C+1
1250 R=R-1
1260 CALL HCHAR(R,C,G)
1270 IF C=27 THEN 1480
1280 IF (C=11)+(C=16)+(C=21)THEN
 1290 ELSE 1230
1290 CALL HCHAR(R,C,32)
1300 C=C+1
1310 CALL HCHAR(R,C,G)
1320 GOSUB 2180
1330 CALL HCHAR(R,C,32)
1340 C=C+1
1350 R=R+1
1360 CALL HCHAR(R,C,G)
1370 IF R=16 THEN 1380 ELSE 1330
1380 CALL HCHAR(13,5,32)
1390 CALL GCHAR(17,C,T)
1400 IF T=106 THEN 2950
1410 CALL SOUND(-50,C*30,0)
1420 PT=RAN(SK)
1430 IF PT>1 THEN 1450
1440 GOSUB 2450
1450 GOTO 1170
1460 STOP
1470 REM   *** JUMP RIGHT ***
1480 CALL GCHAR(13,28,M)
1490 IF (M=32)+(G<>115)THEN 1600
1500 CALL HCHAR(13,28,113)
1510 CALL SOUND(-50,2000,0)
1520 CALL HCHAR(R,C,116)
1530 CALL SOUND(-50,C*30,0)
1540 G=116
1550 CRS=CRS+1
1560 M$=STR$(CRS)&"("
1570 Z=2
1580 V=27
1590 GOSUB 3760
1600 GOSUB 2180
1610 CALL HCHAR(R,C,32)
1620 C=C-1
1630 R=R+1
1640 CALL HCHAR(R,C,G)
1650 IF R=16 THEN 1390
1660 GOTO 1610
1670 STOP
1680 REM   *** LEFT ***
```

```
1690 ON SK GOSUB 2720,2590,2590
1700 CALL GCHAR(R,C,G)
1710 CALL HCHAR(R,C,32)
1720 C=C-1
1730 R=R-1
1740 CALL HCHAR(R,C,G)
1750 IF C=7 THEN 1950
1760 IF (C=12)+(C=17)+(C=22)THEN
 1770 ELSE 1710
1770 CALL HCHAR(R,C,32)
1780 C=C-1
1790 CALL HCHAR(R,C,G)
1800 GOSUB 2180
1810 CALL HCHAR(R,C,32)
1820 C=C-1
1830 R=R+1
1840 CALL HCHAR(R,C,G)
1850 IF R=16 THEN 1860 ELSE 1810
1860 CALL GCHAR(17,C,T)
1870 IF T=106 THEN 2950
1880 CALL SOUND(-50,C*30,0)
1890 PT=RAN(SK)
1900 IF PT>1 THEN 1920
1910 GOSUB 2450
1920 GOTO 1170
1930 STOP
1940 REM   *** JUMP LEFT ***
1950 CALL HCHAR(R,C,32)
1960 CALL HCHAR(R-1,C-1,G)
1970 IF G=115 THEN 2050
1980 CALL HCHAR(13,5,114)
1990 CALL SOUND(-50,2000,0)
2000 G=115
2010 CALL HCHAR(R-1,C-1,G)
2020 CALL SOUND(-50,30*(C-1),0)
2030 GOSUB 2180
2040 CALL HCHAR(13,5,35)
2050 CALL HCHAR(R-1,C-1,32)
2060 CALL HCHAR(R,C,32)
2070 C=C+1
2080 R=R+1
2090 CALL HCHAR(R,C,G)
2100 IF R=16 THEN 2110 ELSE 2060
2110 CALL GCHAR(17,9,T)
2120 IF T=106 THEN 2950
2130 CALL SOUND(-50,C*30,0)
2140 GOSUB 2450
2150 GOTO 1170
2160 STOP
2170 REM   ***DIP TURTLES ***
2180 RF=RAN(5)
2190 ON SK GOTO 2350,2280,2200
2200 CALL GCHAR(19,F,T)
2210 IF T=111 THEN 2280
2220 IF (RF=2)+(RF=3)THEN 2230 E
LSE 2280
```

START
END
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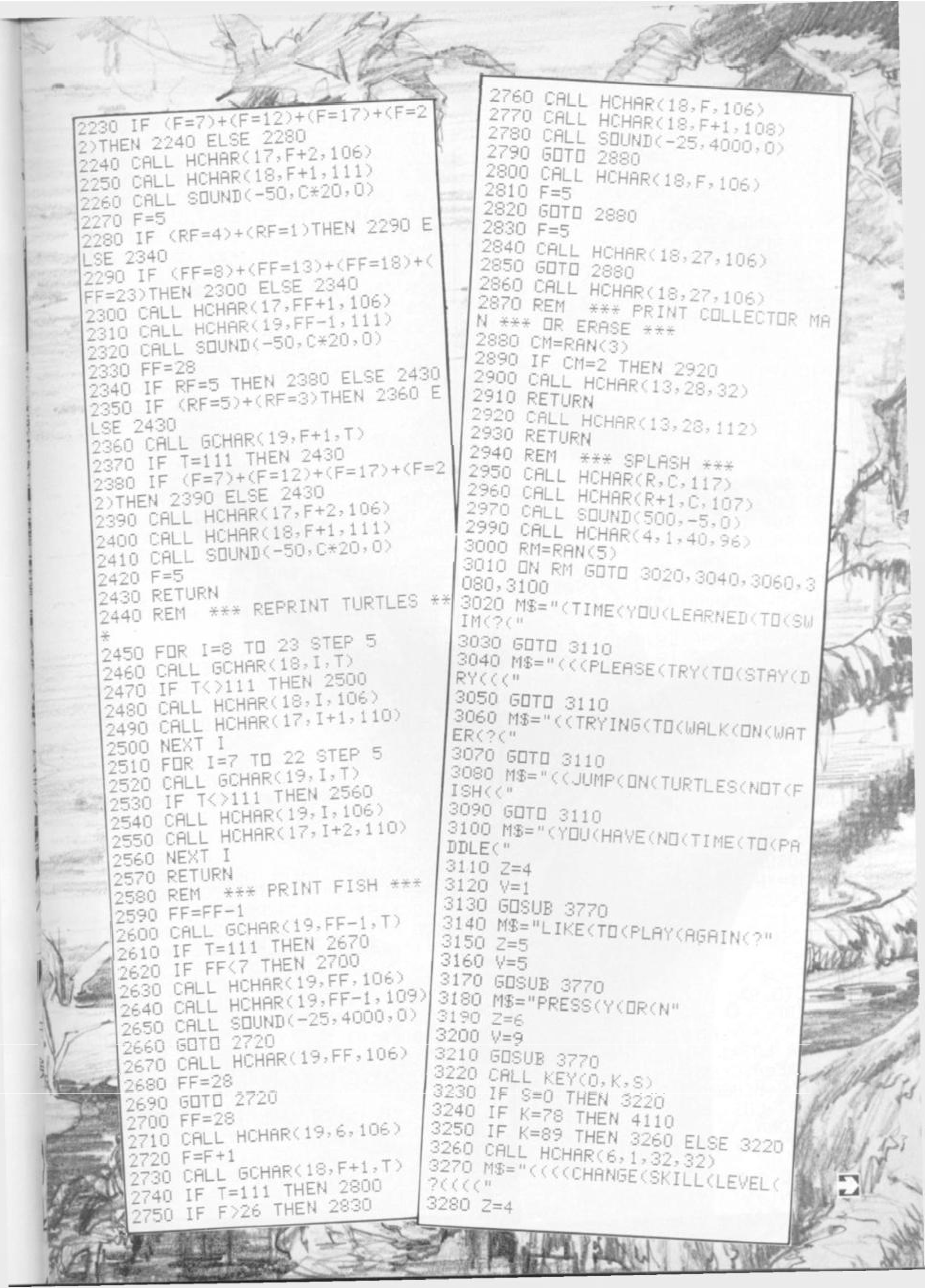

```
2230 IF (F=7)+(F=12)+(F=17)+(F=2
2)THEN 2240 ELSE 2280
2240 CALL HCHAR(17,F+2,106)
2250 CALL HCHAR(18,F+1,111)
2260 CALL SOUND(-50,C*20,0)
2270 F=5
2280 IF (RF=4)+(RF=1)THEN 2290 E
LSE 2340
2290 IF (FF=8)+(FF=13)+(FF=18)+(
FF=23)THEN 2300 ELSE 2340
2300 CALL HCHAR(17,FF+1,106)
2310 CALL HCHAR(19,FF-1,111)
2320 CALL SOUND(-50,C*20,0)
2330 FF=28
2340 IF RF=5 THEN 2380 ELSE 2430
2350 IF (RF=5)+(RF=3)THEN 2360 E
LSE 2430
2360 CALL GCHAR(19,F+1,T)
2370 IF T=111 THEN 2430
2380 IF (F=7)+(F=12)+(F=17)+(F=2
2)THEN 2390 ELSE 2430
2390 CALL HCHAR(17,F+2,106)
2400 CALL HCHAR(18,F+1,111)
2410 CALL SOUND(-50,C*20,0)
2420 F=5
2430 RETURN
2440 REM  *** REPRINT TURTLES **
*
2450 FOR I=8 TO 23 STEP 5
2460 CALL GCHAR(18,I,T)
2470 IF T<>111 THEN 2500
2480 CALL HCHAR(18,I,106)
2490 CALL HCHAR(17,I+1,110)
2500 NEXT I
2510 FOR I=7 TO 22 STEP 5
2520 CALL GCHAR(19,I,T)
2530 IF T<>111 THEN 2560
2540 CALL HCHAR(19,I,106)
2550 CALL HCHAR(17,I+2,110)
2560 NEXT I
2570 RETURN
2580 REM  *** PRINT FISH ***
2590 FF=FF-1
2600 CALL GCHAR(19,FF-1,T)
2610 IF T=111 THEN 2670
2620 IF FF<7 THEN 2700
2630 CALL HCHAR(19,FF,106)
2640 CALL HCHAR(19,FF-1,109)
2650 CALL SOUND(-25,4000,0)
2660 GOTO 2720
2670 CALL HCHAR(19,FF,106)
2680 FF=28
2690 GOTO 2720
2700 FF=28
2710 CALL HCHAR(19,6,106)
2720 F=F+1
2730 CALL GCHAR(18,F+1,T)
2740 IF T=111 THEN 2800
2750 IF F>26 THEN 2830
2760 CALL HCHAR(18,F,106)
2770 CALL HCHAR(18,F+1,108)
2780 CALL SOUND(-25,4000,0)
2790 GOTO 2880
2800 CALL HCHAR(18,F,106)
2810 F=5
2820 GOTO 2880
2830 F=5
2840 CALL HCHAR(18,27,106)
2850 GOTO 2880
2860 CALL HCHAR(18,27,106)
2870 REM  *** PRINT COLLECTOR MA
N *** OR ERASE ***
2880 CM=RAN(3)
2890 IF CM=2 THEN 2920
2900 CALL HCHAR(13,28,32)
2910 RETURN
2920 CALL HCHAR(13,28,112)
2930 RETURN
2940 REM  *** SPLASH ***
2950 CALL HCHAR(R,C,117)
2960 CALL HCHAR(R+1,C,107)
2970 CALL SOUND(500,-5,0)
2990 CALL HCHAR(4,1,40,96)
3000 RM=RAN(5)
3010 ON RM GOTO 3020,3040,3060,3
080,3100
3020 M$="(TIME(YOU(LEARNED(TO(SW
IM(?("
3030 GOTO 3110
3040 M$="(((PLEASE(TRY(TO(STAY(D
RY((("
3050 GOTO 3110
3060 M$="((TRYING(TO(WALK(ON(WAT
ER(?("
3070 GOTO 3110
3080 M$="((JUMP(ON(TURTLES(NOT(F
ISH(("
3090 GOTO 3110
3100 M$="(YOU(HAVE(NO(TIME(TO(PA
DDLE("
3110 Z=4
3120 V=1
3130 GOSUB 3770
3140 M$="LIKE(TO(PLAY(AGAIN(?"
3150 Z=5
3160 V=5
3170 GOSUB 3770
3180 M$="PRESS(Y(OR(N"
3190 Z=6
3200 V=9
3210 GOSUB 3770
3220 CALL KEY(0,K,S)
3230 IF S=0 THEN 3220
3240 IF K=78 THEN 4110
3250 IF K=89 THEN 3260 ELSE 3220
3260 CALL HCHAR(6,1,32,32)
3270 M$="((((CHANGE(SKILL(LEVEL(
?(((("
3280 Z=4
```

```
3290 V=1
3300 GOSUB 3770
3310 M$="((((((((PRESS(Y(OR(N(((
(((((\"
3320 Z=5
3330 V=1
3340 GOSUB 3770
3350 CALL KEY(O,K,S)
3360 IF S=0 THEN 3350
3370 IF K=78 THEN 3470
3380 IF K=89 THEN 3390 ELSE 3350
3390 M$="((((PRESS(LEVEL(1(2(OR(
3(((("
3400 Z=5
3410 V=1
3420 GOSUB 3770
3430 CALL KEY(O,K,S)
3440 IF S=0 THEN 3430
3450 IF (K>48)*(K<52)THEN 3460 E
LSE 3430
3460 SK=K-48
3480 CALL HCHAR(4,1,32,96)
3490 FOR I=9 TO 24 STEP 5
3500 CALL HCHAR(17,I,110)
3510 CALL HCHAR(16,I,32)
3520 CALL HCHAR(18,I-1,106)
3530 CALL HCHAR(19,I-2,106)
3540 NEXT I
3550 CALL HCHAR(18,F+1,106)
3560 CALL HCHAR(19,FF-1,106)
3570 M$="LEVEL="&STR$(SK)
3580 Z=23
3590 V=4
3600 GOSUB 3770
3610 IF HS>CRS THEN 3630
3620 HS=CRS
3630 CRS=0
3640 M$=STR$(CRS)&"("
3650 Z=2
3660 V=27
3670 GOSUB 3770
3680 M$="HI(SCORE="&STR$(HS)
3690 Z=23
3700 V=18
3710 GOSUB 3770
3720 F=5
3730 FF=28
3740 GOTO 970
3750 STOP
3760 REM  *** PRINT AT ***
3770 FOR LOS=1 TO LEN(M$)
3780 CODE=ASC(SEG$(M$,LOS,1))
3790 CALL HCHAR(Z,V+LOS,CODE)
3800 NEXT LOS
3810 RETURN
3820 REM  *** INSTRUCTIONS ***

3830 CALL CLEAR
3840 PRINT "   YOU HAVE BEEN CHO
```

```
SEN TO"::"CARRY PARCELS ACROSS A
 RIVER"::"THAT HAPPENS TO BE FUL
L OF"::
3850 PRINT TAB(11);"TURTLES."::"
THE TURTLES PROVIDE YOU WITH"::"
 THE ONLY MEANS OF CROSSING"::
3860 PRINT "THE RIVER,YOU MUST J
UMP FROM"::"        ONE TO ANOTHE
R."::::" PRESS ANY KEY TO CONTIN
UE."::
3870 CALL KEY(0,K,S)
3880 IF S=1 THEN 3890 ELSE 3870
3890 PRINT " HOWEVER, THE TURTLE
S JUST"::" MIGHT DECIDE TO  DIVE
 FOR"::" FOOD,SO BE CAREFUL NOT
TO"::
3900 PRINT "     GET YOUR FEET W
ET"::"  ONCE YOU START YOUR TASK
"::" YOU CAN NOT REACH DRY LAND"
::
3910 PRINT "  AGAIN. YOU MUST PA
SS THE"::"PARCEL TO YOUR FRIEND
ON THE"::" OTHER BANK WHO MAY OR
 MAY"::
3920 PRINT "NOT BE WAITING FOR Y
OU,THEN"::"GO BACK FOR THE NEXT
PARCEL"::
3930 PRINT " PRESS ANY KEY TO CO
NTINUE."
3940 CALL KEY(0,K,S)
3950 IF S=1 THEN 3960 ELSE 3940
3960 PRINT "YOUR NUMBER OF CROSS
INGS IS"::" SHOWN CONSTANTLY AND
 THERE"::"IS A HIGH-SCORE FEATUR
E PLUS"::
3970 PRINT "  THE CHANCE TO CHAN
GE YOUR"::"  SKILL LEVEL AT THE
END OF"::"           EACH GAME."::
3980 PRINT "USE THE ""S""&""D""
KEYS TO MOVE"::"           LEFT OR
RIGHT."::
3990 PRINT "THERE ARE THREE SKIL
L LEVELS"::"  1";TAB(20);"EASY":
"  2";TAB(20);"HARDER":
4000 PRINT "  3";TAB(20);"HARDES
T"::" PRESS ANY KEY TO CONTINUE.
"
4010 CALL KEY(0,K,S)
4020 IF S=1 THEN 4030 ELSE 4010
4030 CALL CLEAR
4040 PRINT "        PLEASE GIVE YO
UR"::
4050 INPUT "    SKILL LEVEL 1,2,
OR 3          ":SK
4060 IF (SK>3)+(SK<1)THEN 4040
4070 F=5
4080 FF=28
4090 CRS=0
4100 GOTO 80
4110 END
```

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COBUS MAZE by Dave Gibson. Machine: VIC20 unexpanded joystick or keyboard

DUNGEONS OF DOOM by Simon Mansfield. Machine: ZX81/16K/ Spectrum 48K

MONOPOLY by Simon Lacey & Richard Fry. Machine: Dragon 32K/VIC 20 + 16K

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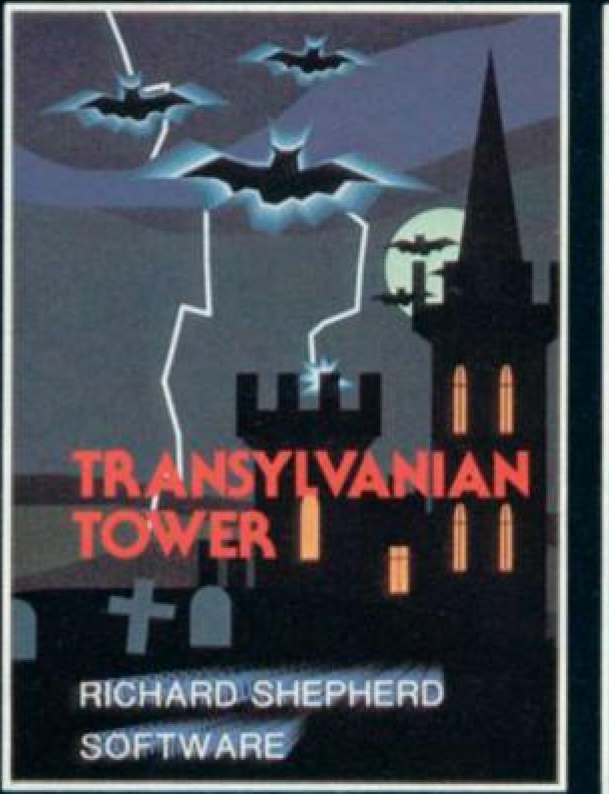

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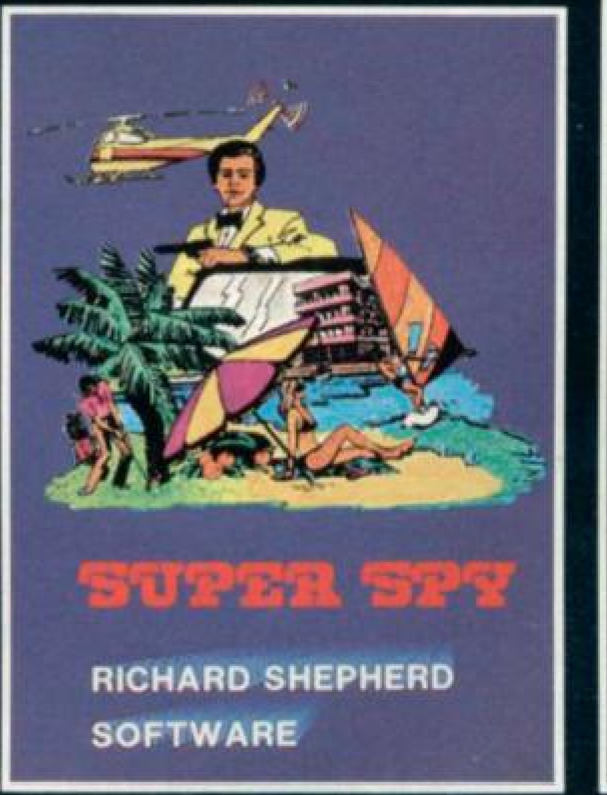

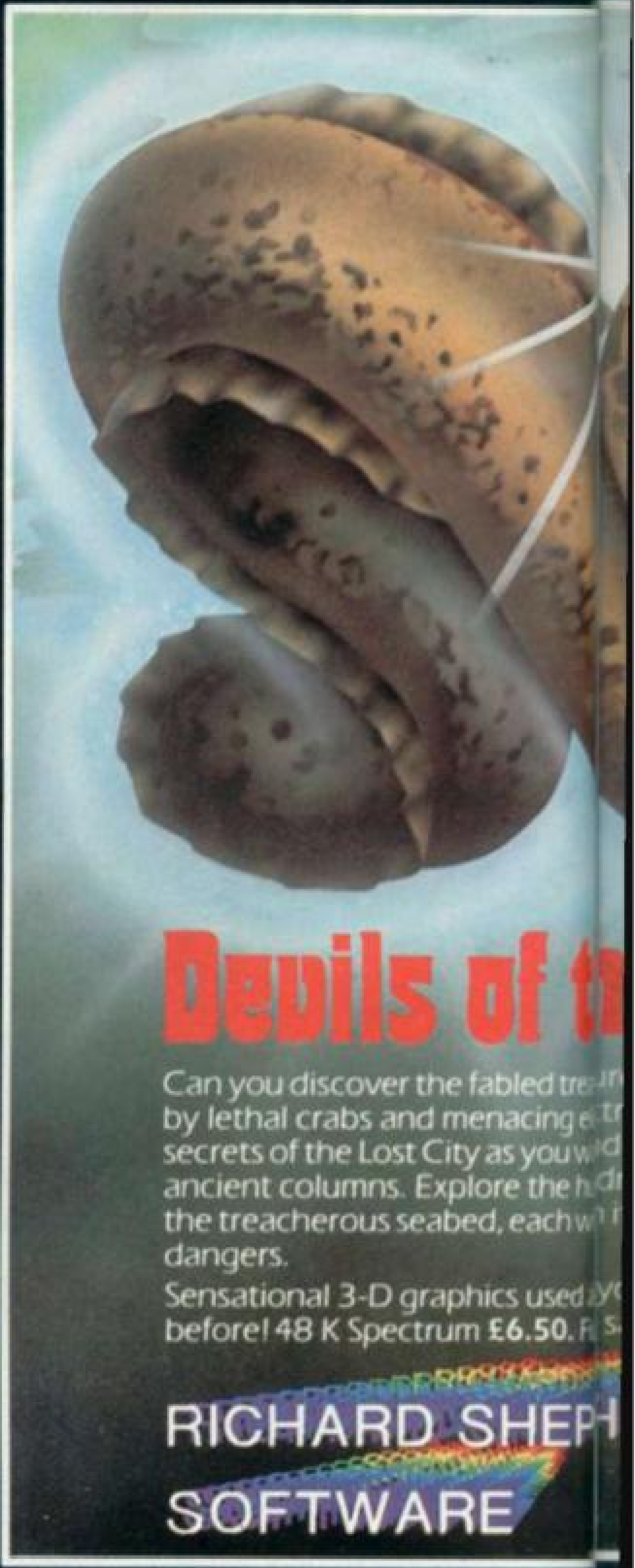

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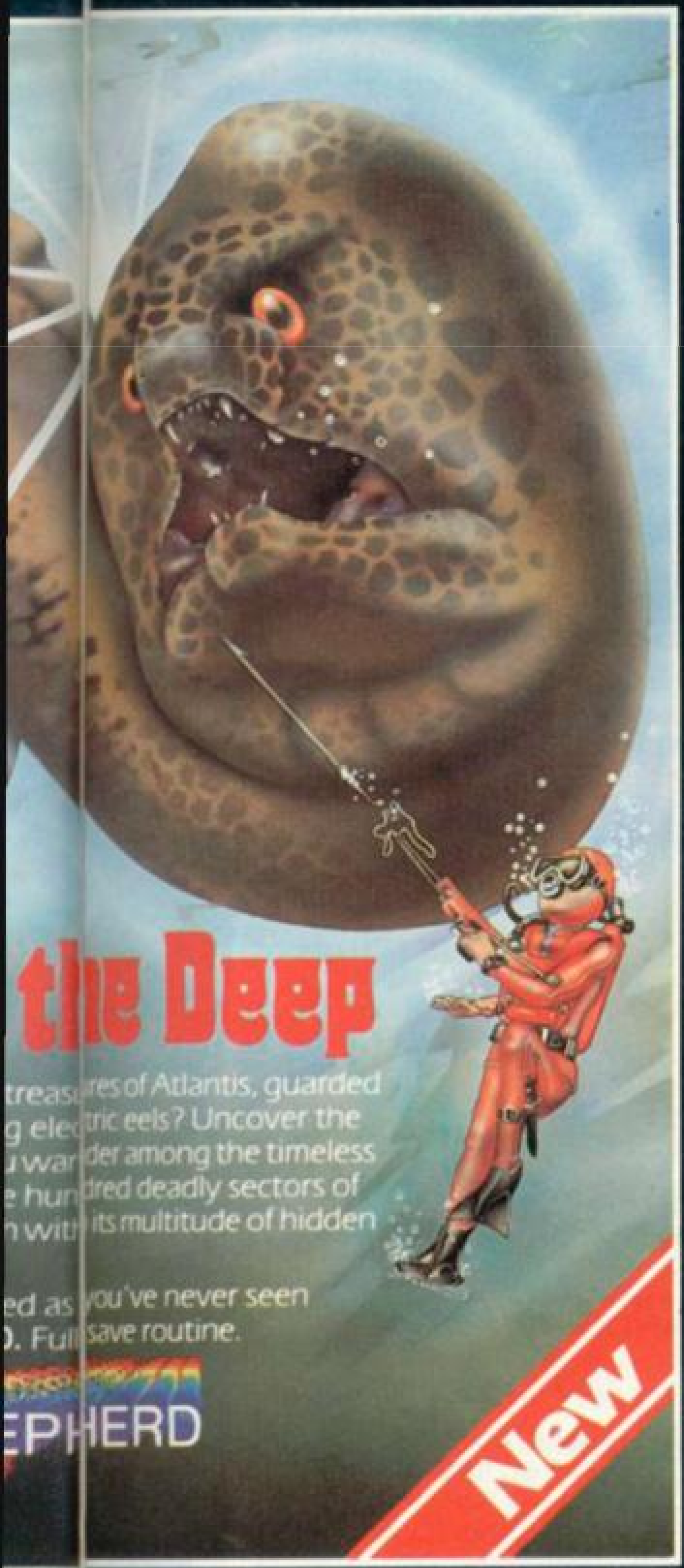

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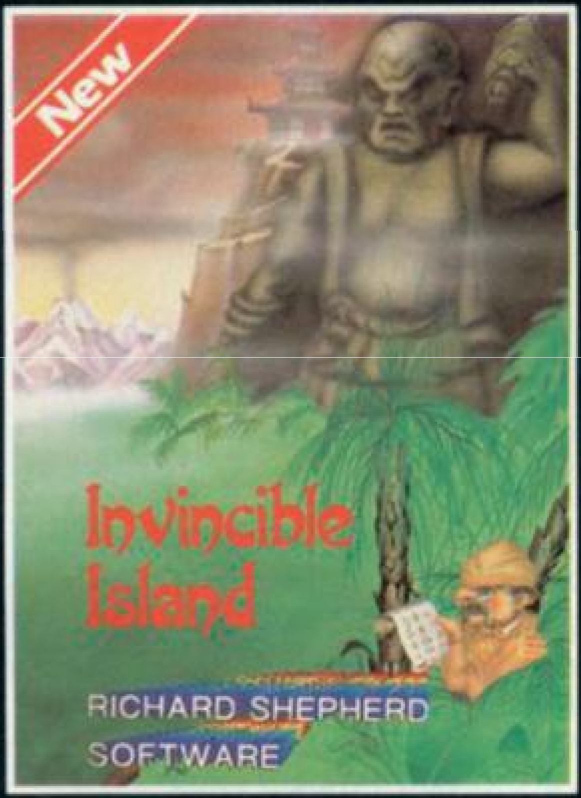

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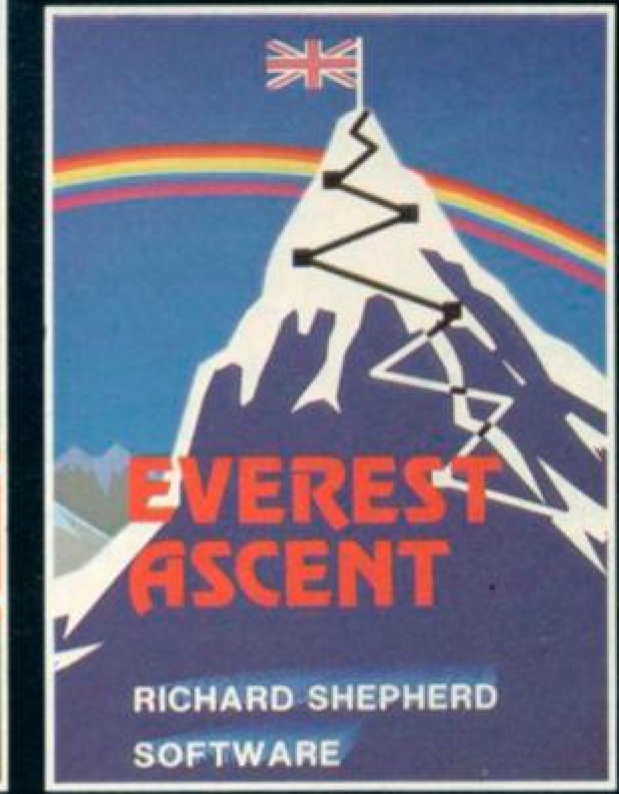

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STAR

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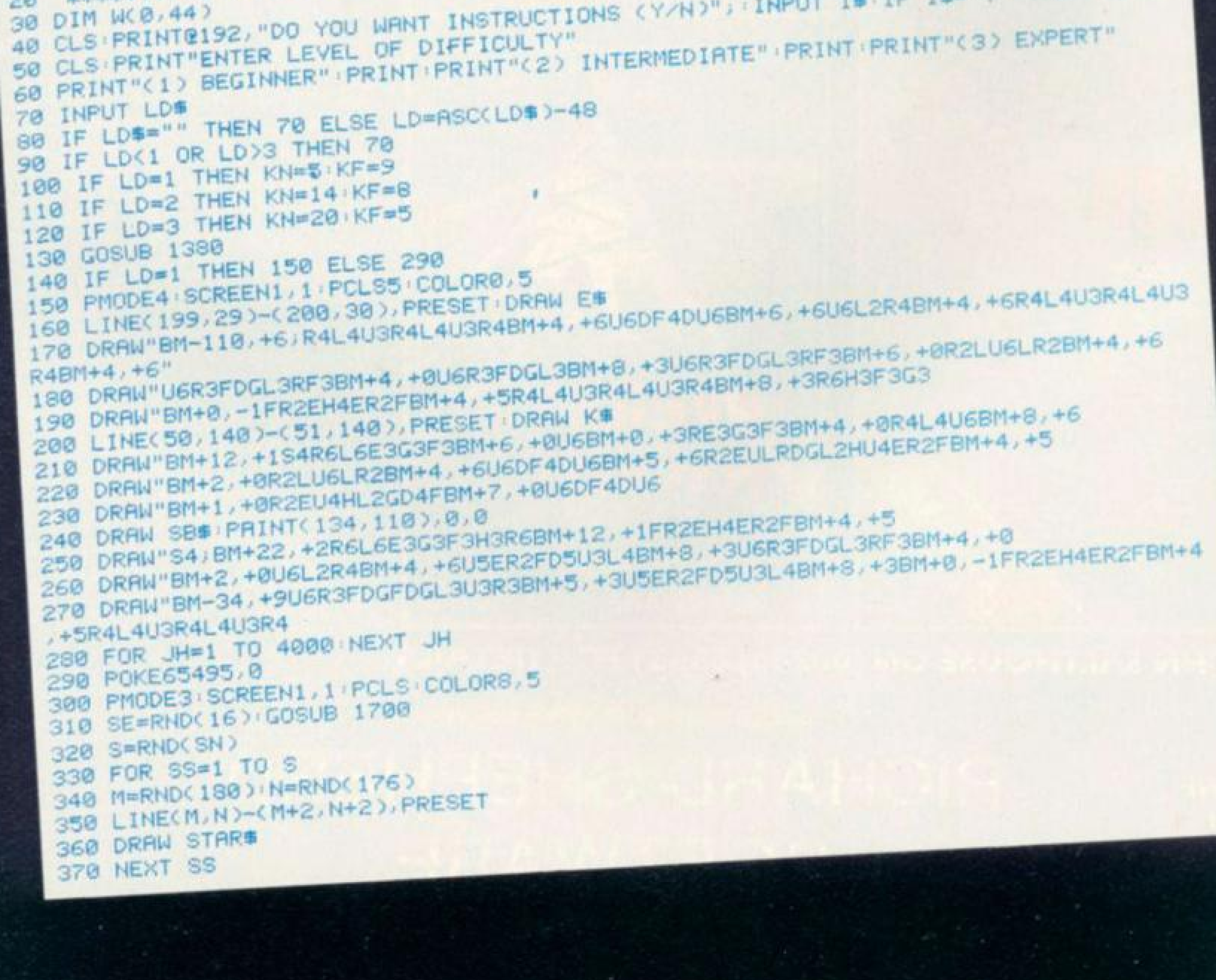
How would you cope with becoming captain of the Starship Enterprise? Would you be able to boldly go in search of nasty Klingons and blast them beyond the final frontier?

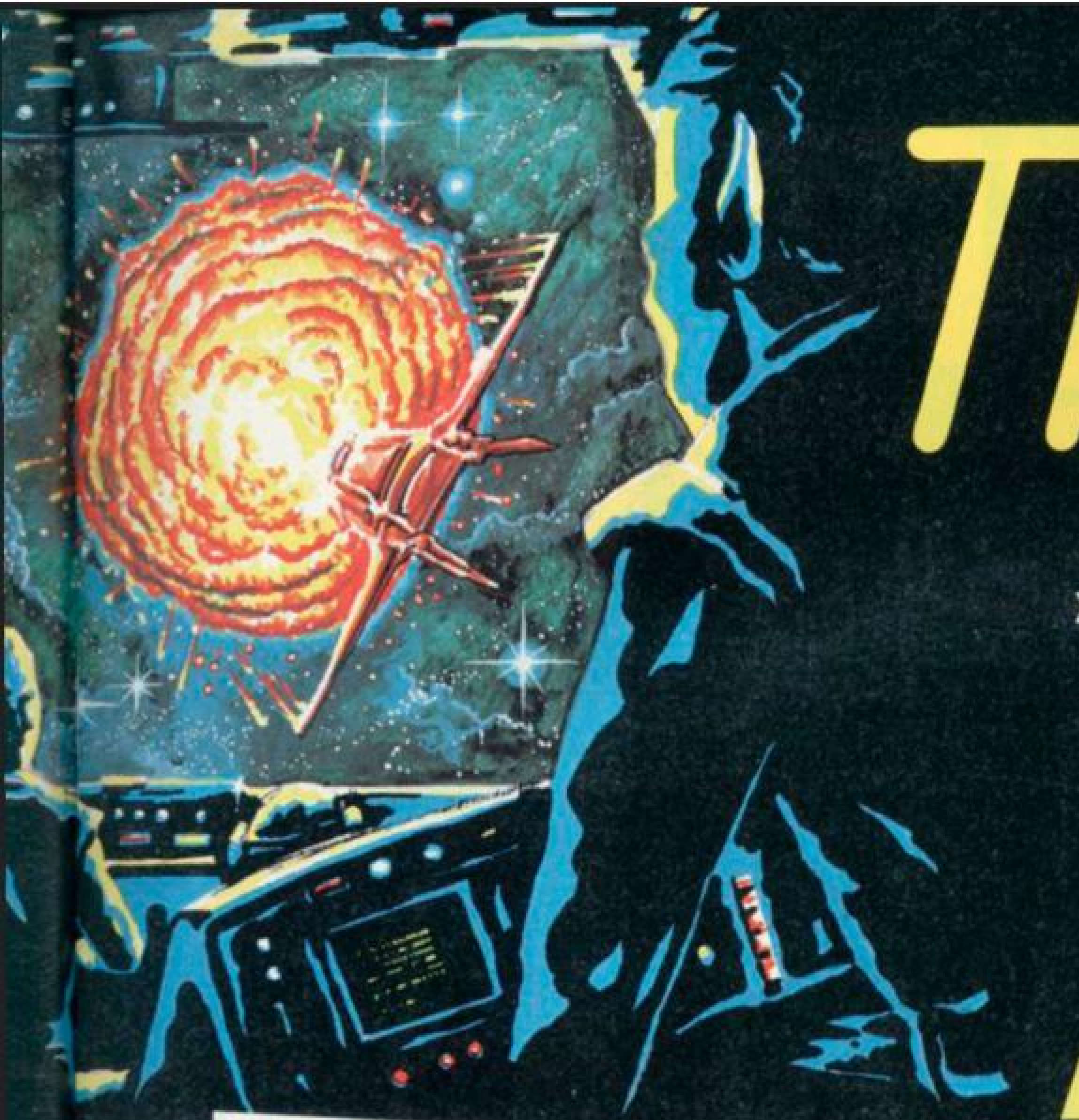
The Klingon menace has finally invaded the Dragon — and to cope with the alien attack the micro has summoned Captain James T. Kirk and his crew. They have to travel the Dragon sector of the galaxy destroying Klingons wherever they find them. You have access to all the Enterprise controls. Warp drive is there to power you on your quest as are the photon torpedoes and phasers — ready to deal death and destruction to the alien hoardes. Just in case the Klingons have the nerve to fire back at you your ship is protected by energy shields. Should you run low on energy you can stock up at a friendly starbase.

There are three levels of difficulty, from beginner to expert, and comprehensive instructions are printed in the program.

BY PAUL JACKSON AND JON HUNT



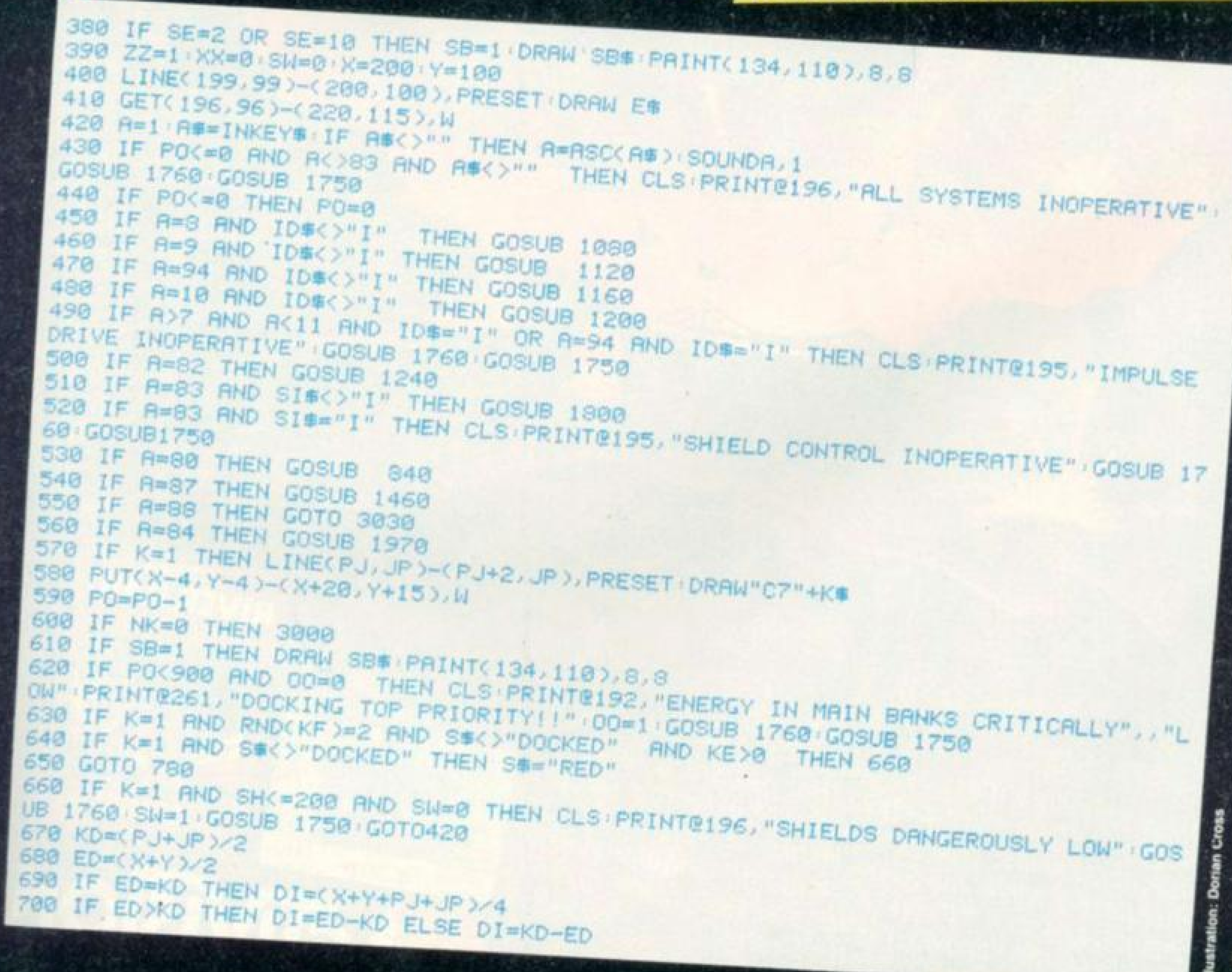
```
10 '***STAR TREK BY P.JACKSON***
20 '*********& J.R.HUNT*********
30 DIM W(0,44)
40 CLS:PRINT@192,"DO YOU WANT INSTRUCTIONS (Y/N)";:INPUT I$:IF I$="Y" THEN 3040
50 CLS:PRINT"ENTER LEVEL OF DIFFICULTY"
60 PRINT"(1) BEGINNER":PRINT:PRINT"(2) INTERMEDIATE":PRINT:PRINT"(3) EXPERT"
70 INPUT LD$
80 IF LD$="" THEN 70 ELSE LD=ASC(LD$)-48
90 IF LD<1 OR LD>3 THEN 70
100 IF LD=1 THEN KN=5:KF=9
110 IF LD=2 THEN KN=14:KF=8
120 IF LD=3 THEN KN=20:KF=5
130 GOSUB 1380
140 IF LD=1 THEN 150 ELSE 290
150 PMODE4:SCREEN1,1:PCLS5:COLOR0,5
160 LINE(199,29)-(200,30),PRESET:DRAW E$
170 DRAW"BM-110,+6;R4L4U3R4L4U3R4BM+4,+6U6DF4DU6BM+6,+6U6L2R4BM+4,+6R4L4U3R4L4U3
R4BM+4,+6"
180 DRAW"U6R3FDGL3RF3BM+4,+0U6R3FDGL3BM+8,+3U6R3FDGL3RF3BM+6,+0R2LU6LR2BM+4,+6
190 DRAW"BM+0,-1FR2EH4ER2FBM+4,+5R4L4U3R4L4U3R4BM+8,+3R6H3F3G3
200 LINE(50,140)-(51,140),PRESET:DRAW K$
210 DRAW"BM+12,+1S4R6L6E3G3F3BM+6,+0U6BM+0,+3RE3G3F3BM+4,+0R4L4U6BM+8,+6
220 DRAW"BM+2,+0R2LU6LR2BM+4,+6U6DF4DU6BM+5,+6R2EULRDGL2HU4ER2FBM+4,+5
230 DRAW"BM+1,+0R2EU4HL2GD4FBM+7,+0U6DF4DU6
240 DRAW SB$:PAINT(134,110),0,0
250 DRAW"S4;BM+22,+2R6L6E3G3F3H3R6BM+12,+1FR2EH4ER2FBM+4,+5
260 DRAW"BM+2,+0U6L2R4BM+4,+6U5ER2FD5U3L4BM+8,+3U6R3FDGL3RF3BM+4,+0
270 DRAW"BM-34,+9U6R3FDGFDGL3U3R3BM+5,+3U5ER2FD5U3L4BM+8,+3BM+0,-1FR2EH4ER2FBM+4
,+5R4L4U3R4L4U3R4
280 FOR JH=1 TO 4000:NEXT JH
290 POKE65495,0
300 PMODE3:SCREEN1,1:PCLS:COLOR8,5
310 SE=RND(16):GOSUB 1700
320 S=RND(SN)
330 FOR SS=1 TO S
340 M=RND(180):N=RND(176)
350 LINE(M,N)-(M+2,N+2),PRESET
360 DRAW STAR$
370 NEXT SS
```



TREK

Variables:
A: inkeyed commands.
K: number of Klingons.
X,Y: 'X','Y' co-ordinates for the Enterprise.
PJ,JP: 'X','Y' co-ordinates for Klingons.
S: number of stars.
S$: current status.
SB$: star base.
E$: Enterprise.
K$: Klingon.
Star$: star.
Tu$: congratulation tune.

RUNS ON A DRAGON IN 32K

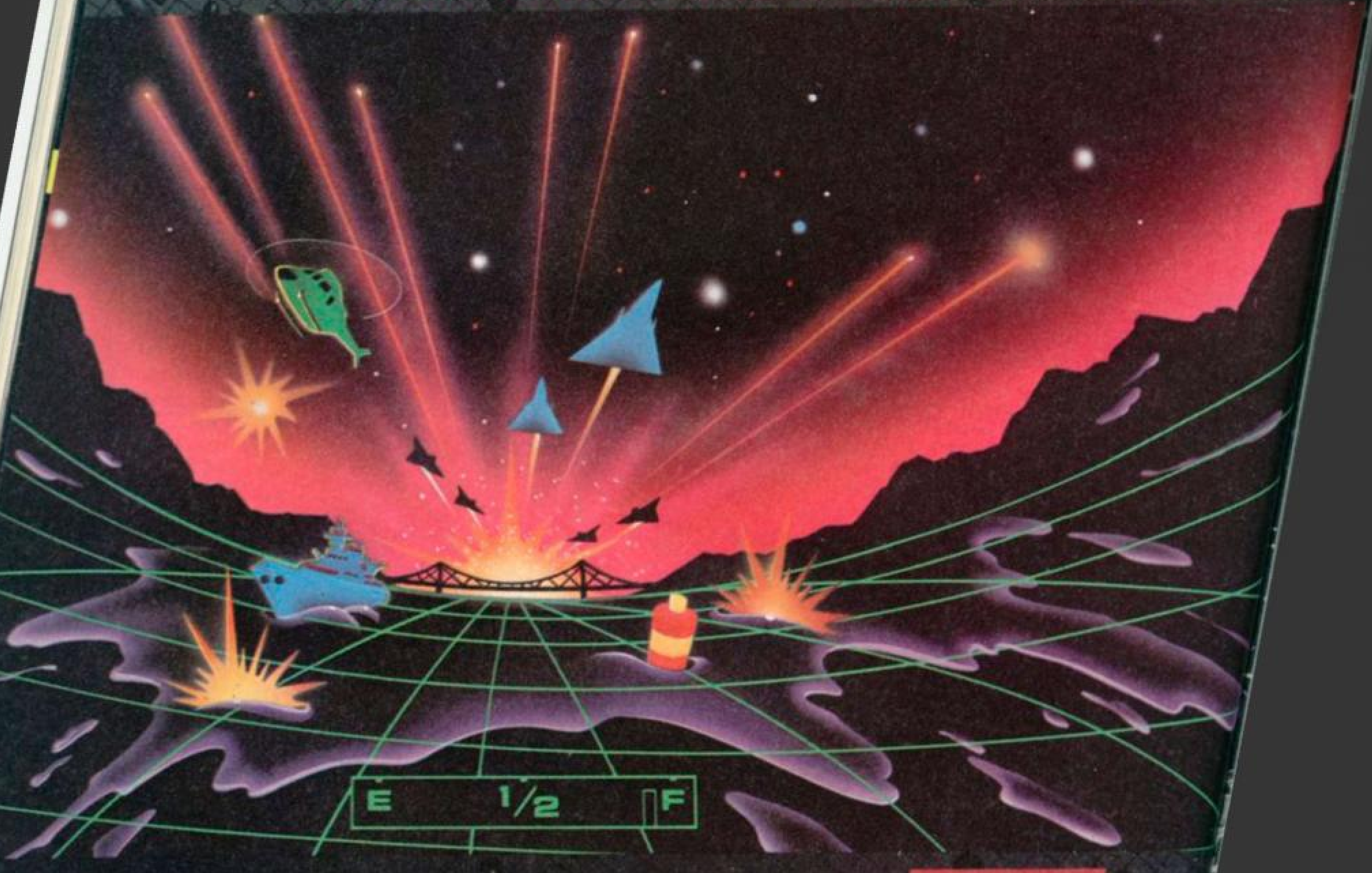


```
380 IF SE=2 OR SE=10 THEN SB=1:DRAW SB$:PAINT(134,110),8,8
390 ZZ=1:XX=0:SW=0:X=200:Y=100
400 LINE(199,99)-(200,100),PRESET:DRAW E$
410 GET(196,96)-(220,115),W
420 A=1:A$=INKEY$:IF A$<>"" THEN A=ASC(A$):SOUNDA,1
430 IF PO<=0 AND A<>83 AND A$<>""  THEN CLS:PRINT@196,"ALL SYSTEMS INOPERATIVE":
GOSUB 1760:GOSUB 1750
440 IF PO<=0 THEN PO=0
450 IF A=8 AND ID$<>"I"  THEN GOSUB 1080
460 IF A=9 AND ID$<>"I" THEN GOSUB  1120
470 IF A=94 AND ID$<>"I" THEN GOSUB 1160
480 IF A=10 AND ID$<>"I"  THEN GOSUB 1200
490 IF A>7 AND A<11 AND ID$="I" OR A=94 AND ID$="I" THEN CLS:PRINT@195,"IMPULSE
DRIVE INOPERATIVE":GOSUB 1760:GOSUB 1750
500 IF A=82 THEN GOSUB 1240
510 IF A=83 AND SI$<>"I" THEN GOSUB 1800
520 IF A=83 AND SI$="I" THEN CLS:PRINT@195,"SHIELD CONTROL INOPERATIVE":GOSUB 17
60:GOSUB1750
530 IF A=80 THEN GOSUB  840
540 IF A=87 THEN GOSUB 1460
550 IF A=88 THEN GOTO 3030
560 IF A=84 THEN GOSUB 1970
570 IF K=1 THEN LINE(PJ,JP)-(PJ+2,JP),PRESET:DRAW"C7"+K$
580 PUT(X-4,Y-4)-(X+20,Y+15),W
590 PO=PO-1
600 IF NK=0 THEN 3000
610 IF SB=1 THEN DRAW SB$:PAINT(134,110),8,8
620 IF PO<900 AND OO=0  THEN CLS:PRINT@192,"ENERGY IN MAIN BANKS CRITICALLY",,"L
OW":PRINT@261,"DOCKING TOP PRIORITY!!":OO=1:GOSUB 1760:GOSUB 1750
630 IF K=1 AND RND(KF)=2 AND S$<>"DOCKED"  AND KE>0  THEN 660
640 IF K=1 AND S$<>"DOCKED" THEN S$="RED"
650 GOTO 780
660 IF K=1 AND SH<=200 AND SW=0 THEN CLS:PRINT@196,"SHIELDS DANGEROUSLY LOW":GOS
UB 1760:SW=1:GOSUB 1750:GOTO420
670 KD=(PJ+JP)/2
680 ED=(X+Y)/2
690 IF ED=KD THEN DI=(X+Y+PJ+JP)/4
700 IF ED>KD THEN DI=ED-KD ELSE DI=KD-ED
```

Illustration: Dorian Cross

RIVER RAID™

A FIGHT TO THE FINISH ON THE RIVER OF NO RETURN.



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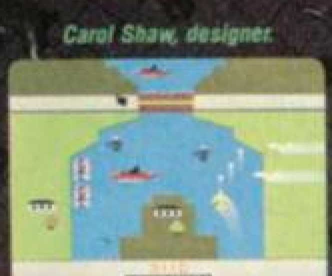

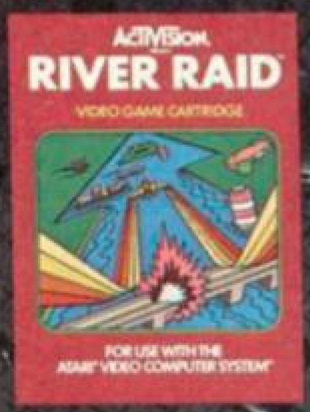
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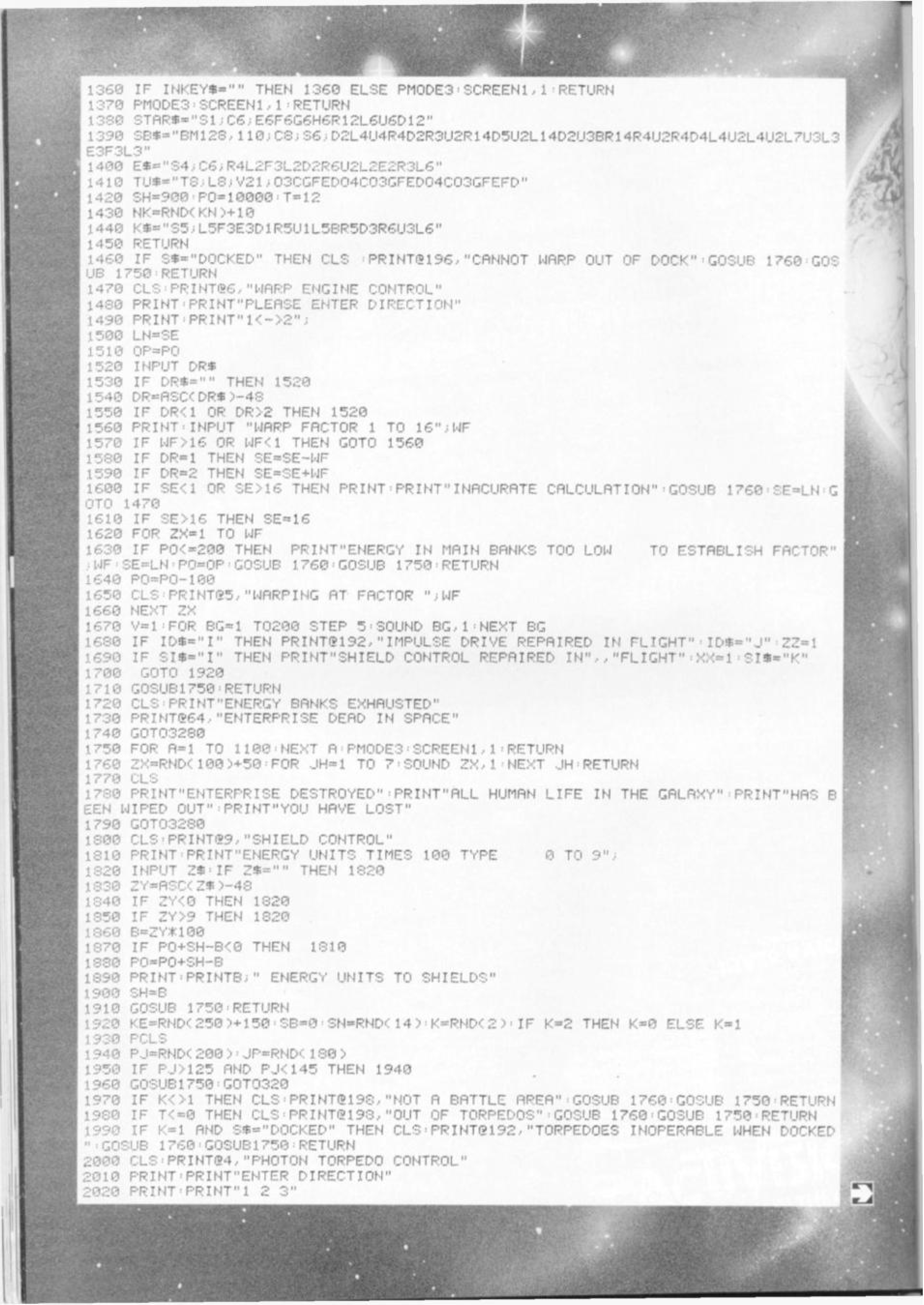
WE PUT YOU IN THE GAME.

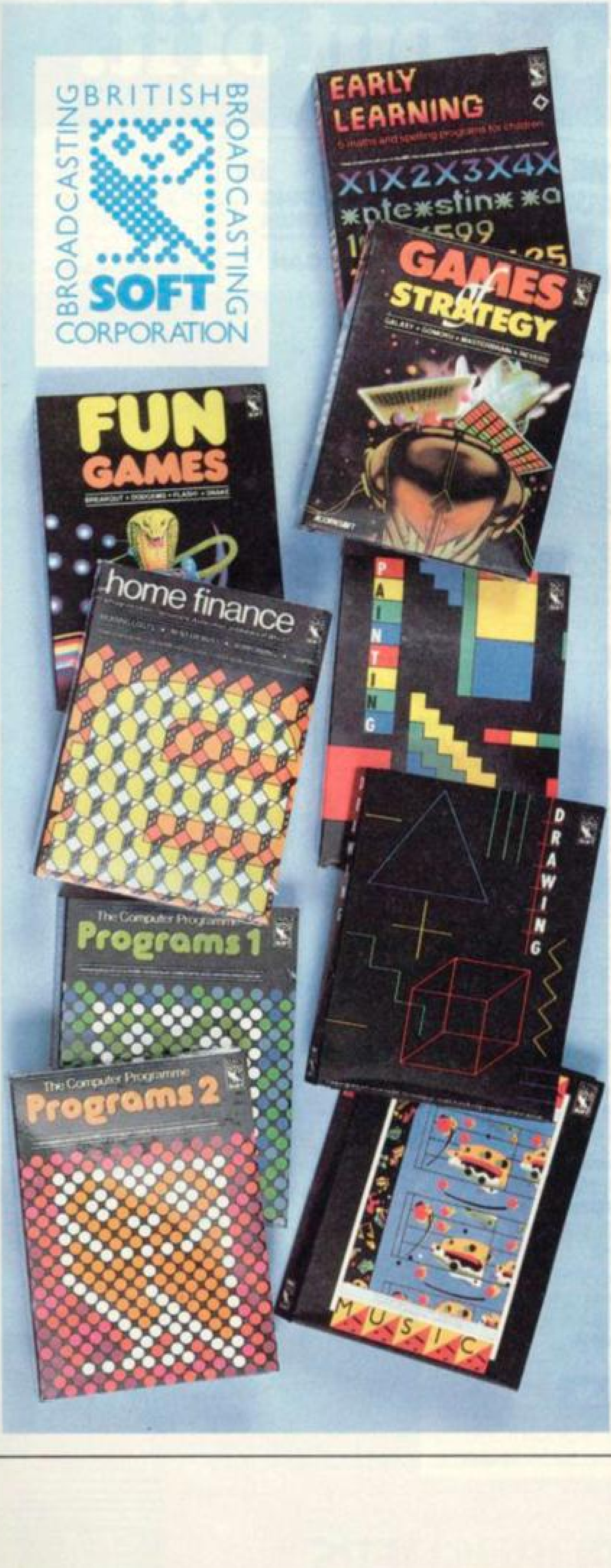
```
710 HE=INT(KE/DI)*4:SH=SH-HE
720 IF HE<=0 THEN 750
730 CLS:PRINT@96,HE;" UNIT HIT ON ENTERPRISE"
740 GOSUB1760
750 IF HE>200 THEN ID$="I":IF ID$="I" AND ZZ=1 THEN CLS:PRINT@192,"IMPULSE DRIVE
 IS INOPERATIVE DUETO ENEMY FIRE":GOSUB 1750:ZZ=0
760 IF HE>250 AND XX=0 THEN SI$="I":XX=1:IF XX=1 THENPRINT@192,"SHEILD CONTROL I
NOPERATIVE DUE  TO ENEMY FIRE":GOSUB 1750
770 IF SH<0 THEN 1770
780 GOSUB 1750
790 IF PO<=0 AND SH>0 AND CC=0THEN CLS:PRINT"POWER IN MAIN BANKS EXHAUSTED.":PRI
NT"POWER MUST BE DIVERTED FROM               SHIELDS":GOSUB 1760:GOSUB 1750:CC=1
800 IF PO<=0 AND SH<=0  THEN GOSUB 1720
810 IF DT=0 AND  PPOINT(X,Y)=8 AND SE=2 OR DT=0 AND PPOINT(X,Y)=8 AND SE=10  THE
N CLS:DT=1:PRINT@200,"DOCKING COMPLETE":PLAY"T255;ABFGBAABFGBA":S$="DOCKED":GOSU
B 1750:GOSUB 2990
820 DV=PPOINT(X,Y):IF DV<>8 THEN DT=0:IF DV<>8 AND K=0 THEN S$="GREEN" ELSE S$="
RED"
830 GOTO420
840 IF A=80 AND K=0 THEN CLS:PRINT@198,"NOT A BATTLE AREA":GOSUB 1760:GOSUB1750:
RETURN
850 IF S$="DOCKED" THEN CLS:PRINT@193,"PHASERS INOPERABLE WHEN DOCKED":GOSUB 176
0:GOSUB 1750:RETURN
860 CLS:PRINT@9,"PHASER CONTROL"
870 PRINT@64,"WHAT PHASER POWER TYPE 1 TO 9";
880 INPUT Z$:IF Z$="" THEN 880
890 ZX=ASC(Z$)-48
900 IF ZX<1 THEN 880
910 IF ZX>9 THEN 880
920 EU=ZX*50
930 IF PO-EU<0 THEN PRINT@192,"INSUFFICIENT POWER IN MAIN BANKS":GOSUB 1760:GOSU
B 1750:RETURN
940 PO=PO-EU
950 KD=(PJ+JP)/2
960 ED=(X+Y)/2
970 IF KD=ED THEN DI=(X+Y+PJ+JP)/4
980 IF KD>ED THEN DI=KD-ED ELSE DI=ED-KD
990 HE=INT(EU/DI)*3:KE=KE-HE
1000 IF HE<=10 THEN PRINT@132,"ENTERPRISE OUT OF RANGE":GOSUB 1760:GOTO1060
1010 GOSUB 1750
1020 LINE(X-1,Y)-(PJ+5,JP),PSET:SOUND255,10:LINE(X-1,Y)-(PJ+5,JP),PRESET
1030 IF KE<=0 THEN GOSUB 2900
1040 IF KE>0 THEN PRINT@130,;HE;" UNIT HIT ON KLINGON":GOSUB 1760
1050 IF KE<=0 THEN PLAY TU$:K=0:NK=NK-1:LINE-(PJ,JP),PRESET
1060 GOSUB 1750
1070 RETURN
1080 IF X<=12 THEN RETURN ELSE X=X-1:PUT(X-4,Y-4)-(X+20,Y+8),W
1090 IF PO<=0 THEN RETURN
1100 PO=PO-2
1110 IF INKEY$="H" THEN RETURN ELSE 1080
1120 IF X>=226 THEN RETURN ELSE X=X+1:PUT(X-4,Y-4)-(X+20,Y+8),W
1130 IF PO<=0 THEN RETURN
1140 PO=PO-2
1150 IF INKEY$="H" THEN RETURN ELSE 1120
1160 IF Y<=8 THEN RETURN ELSE Y=Y-1:PUT(X-4,Y-4)-(X+20,Y+9),W
1170 IF PO<=0 THEN RETURN
1180 PO=PO-2
1190 IF INKEY$="H" THEN RETURN ELSE 1160
1200 IF Y>=170 THEN RETURN ELSE Y=Y+1:PUT(X-4,Y-4)-(X+20,Y+8),W
1210 IF PO<=0 THEN RETURN
1220 PO=PO-2
1230 IF INKEY$="H" THEN RETURN ELSE 1200
1240 CLS
1250 IF K=0 AND S$<>"DOCKED" THEN S$="GREEN"
1260 IF K=1 AND S$<>"DOCKED" THEN S$="RED"
1270 PRINT@448,"STATUS-";S$:PRINT
1280 PRINT"KLINGONS IN CURRENT SECTOR-";K
1290 PRINT:PRINT"STAR BASES IN CURRENT SECTOR-";SB
1300 PRINT"ENERGY UNITS IN SHIELDS-";SH
1310 PRINT:PRINT"POWER IN MAIN BANKS-";PO
1320 PRINT:PRINT"CURRENT SECTOR-";SE
1330 PRINT:PRINT"PHOTON TORPEDOS-";T
1340 PRINT:PRINT"KLINGONS IN THE GALAXY-";NK
1350 PRINT@480,"PRESS A KEY TO CONTINUE";
```



```
1360 IF INKEY$="" THEN 1360 ELSE PMODE3:SCREEN1,1:RETURN
1370 PMODE3:SCREEN1,1:RETURN
1380 STAR$="S1;C6;E6F6G6H6R12L6U6D12"
1390 SB$="BM128,110;C8;S6;D2L4U4R4D2R3U2R14D5U2L14D2U3BR14R4U2R4D4L4U2L4U2L7U3L3
E3F3L3"
1400 E$="S4;C6;R4L2F3L2D2R6U2L2E2R3L6"
1410 TU$="T8;L8;V21;O3CGFEDO4CO3GFEDO4CO3GFEFD"
1420 SH=900:PO=10000:T=12
1430 NK=RND(KN)+10
1440 K$="S5;L5F3E3D1R5U1L5BR5D3R6U3L6"
1450 RETURN
1460 IF S$="DOCKED" THEN CLS :PRINT@196,"CANNOT WARP OUT OF DOCK":GOSUB 1760:GOS
UB 1750:RETURN
1470 CLS:PRINT@6,"WARP ENGINE CONTROL"
1480 PRINT:PRINT"PLEASE ENTER DIRECTION"
1490 PRINT:PRINT"1<->2";
1500 LN=SE
1510 OP=PO
1520 INPUT DR$
1530 IF DR$="" THEN 1520
1540 DR=ASC(DR$)-48
1550 IF DR<1 OR DR>2 THEN 1520
1560 PRINT:INPUT "WARP FACTOR 1 TO 16";WF
1570 IF WF>16 OR WF<1 THEN GOTO 1560
1580 IF DR=1 THEN SE=SE-WF
1590 IF DR=2 THEN SE=SE+WF
1600 IF SE<1 OR SE>16 THEN PRINT:PRINT"INACURATE CALCULATION":GOSUB 1760:SE=LN:G
OTO 1470
1610 IF SE>16 THEN SE=16
1620 FOR ZX=1 TO WF
1630 IF PO<=200 THEN  PRINT"ENERGY IN MAIN BANKS TOO LOW    TO ESTABLISH FACTOR"
;WF:SE=LN:PO=OP:GOSUB 1760:GOSUB 1750:RETURN
1640 PO=PO-100
1650 CLS:PRINT@5,"WARPING AT FACTOR ";WF
1660 NEXT ZX
1670 V=1:FOR BG=1 TO200 STEP 5:SOUND BG,1:NEXT BG
1680 IF ID$="I" THEN PRINT@192,"IMPULSE DRIVE REPAIRED IN FLIGHT":ID$="J":ZZ=1
1690 IF SI$="I" THEN PRINT"SHIELD CONTROL REPAIRED IN",,"FLIGHT":XX=1:SI$="K"
1700  GOTO 1920
1710 GOSUB1750:RETURN
1720 CLS:PRINT"ENERGY BANKS EXHAUSTED"
1730 PRINT@64,"ENTERPRISE DEAD IN SPACE"
1740 GOTO3280
1750 FOR A=1 TO 1100:NEXT A:PMODE3:SCREEN1,1:RETURN
1760 ZX=RND(100)+50:FOR JH=1 TO 7:SOUND ZX,1:NEXT JH:RETURN
1770 CLS
1780 PRINT"ENTERPRISE DESTROYED":PRINT"ALL HUMAN LIFE IN THE GALAXY":PRINT"HAS B
EEN WIPED OUT":PRINT"YOU HAVE LOST"
1790 GOTO3280
1800 CLS:PRINT@9,"SHIELD CONTROL"
1810 PRINT:PRINT"ENERGY UNITS TIMES 100 TYPE     0 TO 9";
1820 INPUT Z$:IF Z$="" THEN 1820
1830 ZY=ASC(Z$)-48
1840 IF ZY<0 THEN 1820
1850 IF ZY>9 THEN 1820
1860 B=ZY*100
1870 IF PO+SH-B<0 THEN  1810
1880 PO=PO+SH-B
1890 PRINT:PRINTB;" ENERGY UNITS TO SHIELDS"
1900 SH=B
1910 GOSUB 1750:RETURN
1920 KE=RND(250)+150:SB=0:SN=RND(14):K=RND(2):IF K=2 THEN K=0 ELSE K=1
1930 PCLS
1940 PJ=RND(200):JP=RND(180)
1950 IF PJ>125 AND PJ<145 THEN 1940
1960 GOSUB1750:GOTO320
1970 IF K<>1 THEN CLS:PRINT@198,"NOT A BATTLE AREA":GOSUB 1760:GOSUB 1750:RETURN
1980 IF T<=0 THEN CLS:PRINT@198,"OUT OF TORPEDOS":GOSUB 1760:GOSUB 1750:RETURN
1990 IF K=1 AND S$="DOCKED" THEN CLS:PRINT@192,"TORPEDOES INOPERABLE WHEN DOCKED
":GOSUB 1760:GOSUB1750:RETURN
2000 CLS:PRINT@4,"PHOTON TORPEDO CONTROL"
2010 PRINT:PRINT"ENTER DIRECTION"
2020 PRINT:PRINT"1 2 3"
```

SOFTWARE FOR YOUR MICRO

British Broadcasting Corporation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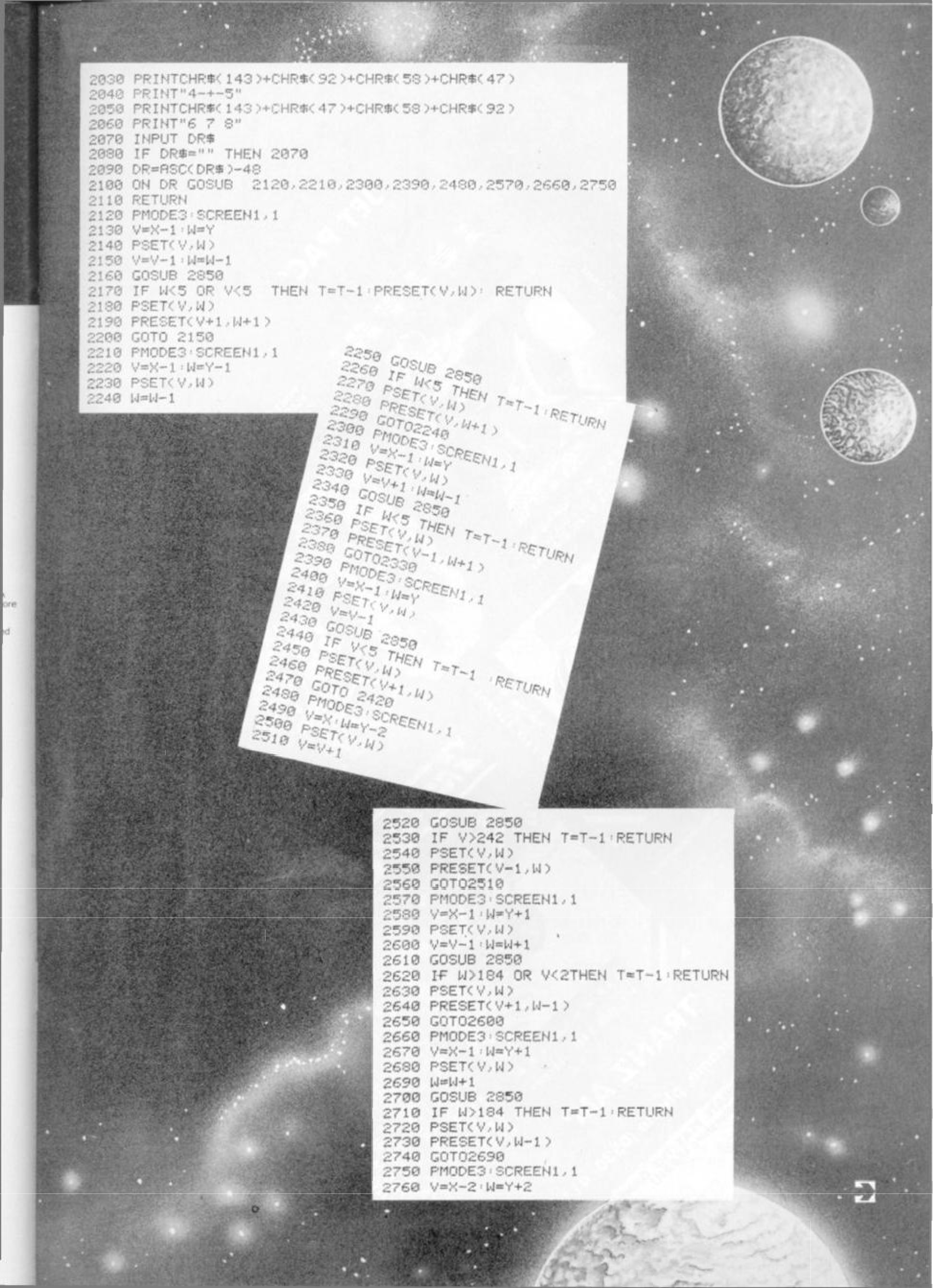

```
2030 PRINTCHR$(143)+CHR$(92)+CHR$(58)+CHR$(47)
2040 PRINT"4-+-5"
2050 PRINTCHR$(143)+CHR$(47)+CHR$(58)+CHR$(92)
2060 PRINT"6 7 8"
2070 INPUT DR$
2080 IF DR$="" THEN 2070
2090 DR=ASC(DR$)-48
2100 ON DR GOSUB  2120,2210,2300,2390,2480,2570,2660,2750
2110 RETURN
2120 PMODE3:SCREEN1,1
2130 V=X-1:W=Y
2140 PSET(V,W)
2150 V=V-1:W=W-1
2160 GOSUB 2850
2170 IF W<5 OR V<5  THEN T=T-1:PRESET(V,W): RETURN
2180 PSET(V,W)
2190 PRESET(V+1,W+1)
2200 GOTO 2150
2210 PMODE3:SCREEN1,1
2220 V=X-1:W=Y-1
2230 PSET(V,W)
2240 W=W-1
2250 GOSUB 2850
2260 IF W<5 THEN T=T-1:RETURN
2270 PSET(V,W)
2280 PRESET(V,W+1)
2290 GOTO2240
2300 PMODE3:SCREEN1,1
2310 V=X-1:W=Y
2320 PSET(V,W)
2330 V=V+1:W=W-1
2340 GOSUB 2850
2350 IF W<5 THEN T=T-1:RETURN
2360 PSET(V,W)
2370 PRESET(V-1,W+1)
2380 GOTO2330
2390 PMODE3:SCREEN1,1
2400 V=X-1:W=Y
2410 PSET(V,W)
2420 V=V-1
2430 GOSUB 2850
2440 IF V<5 THEN T=T-1  :RETURN
2450 PSET(V,W)
2460 PRESET(V+1,W)
2470 GOTO 2420
2480 PMODE3:SCREEN1,1
2490 V=X:W=Y-2
2500 PSET(V,W)
2510 V=V+1
2520 GOSUB 2850
2530 IF V>242 THEN T=T-1:RETURN
2540 PSET(V,W)
2550 PRESET(V-1,W)
2560 GOTO2510
2570 PMODE3:SCREEN1,1
2580 V=X-1:W=Y+1
2590 PSET(V,W)
2600 V=V-1:W=W+1
2610 GOSUB 2850
2620 IF W>184 OR V<2THEN T=T-1:RETURN
2630 PSET(V,W)
2640 PRESET(V+1,W-1)
2650 GOTO2600
2660 PMODE3:SCREEN1,1
2670 V=X-1:W=Y+1
2680 PSET(V,W)
2690 W=W+1
2700 GOSUB 2850
2710 IF W>184 THEN T=T-1:RETURN
2720 PSET(V,W)
2730 PRESET(V,W-1)
2740 GOTO2690
2750 PMODE3:SCREEN1,1
2760 V=X-2:W=Y+2
```

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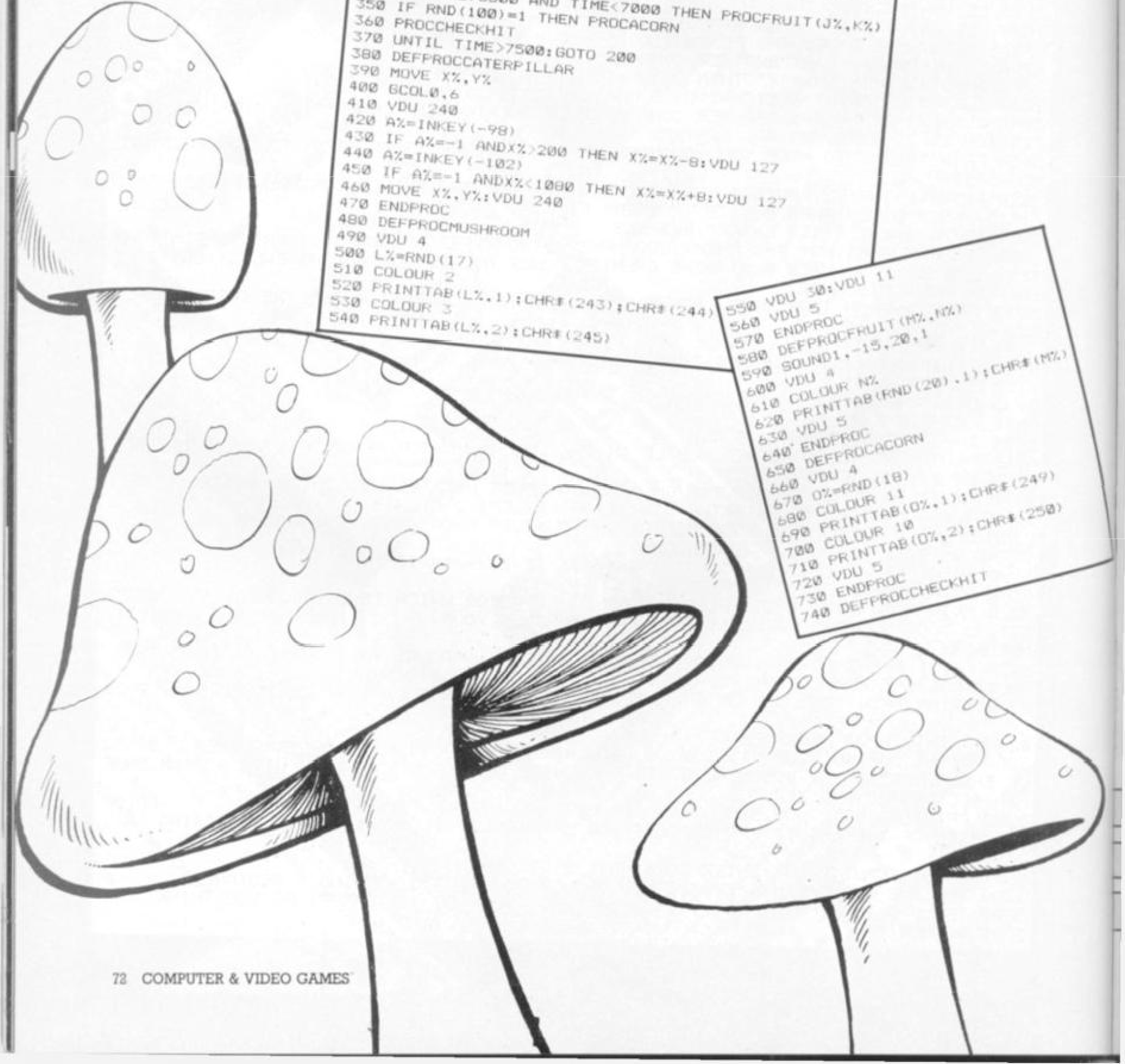
```
2770 PSET(V,W)
2780 V=V+1:W=W+1
2790 GOSUB 2850
2800 IF W>184 THEN T=T-1:RETURN
2810 PSET(V,W)
2820 PRESET(V-1,W-1)
2830 GOTO2780
2840 GOSUB 2850
2850 IF PPOINT(V,W)=7 THEN 2880
2860 IF PPOINT(V,W-2)=8 AND SB=1 THEN CLS:PRINT@192,"STAR BASE DESROYED.":PRINT"
YOU ARE RELEIVED OF COMMAND.",,"TRAITOR!":POKE65494,0:END
2870 RETURN
2880 GOSUB 2900
2890 GOTO 2970
2900 FOR CB=1 TO 12
2910 CIRCLE(PJ+6,JP+2),CB,7
2920 NEXT CB
2930 FOR CB=12 TO 1 STEP -1
2940 CIRCLE(PJ+6,JP+2),CB,5
2950 NEXT CB
2960 RETURN
2970 PLAY TU$
2980 K=0:NK=NK-1:S$="GREEN":GOSUB 1750:T=T-1:GOTO420
2990 IF S$="DOCKED" THEN PO=10000:T=12:DT=1:SH=900:OO=0:CC=0:RETURN
3000 CLS:PRINT:PRINT"CONGRATULATIONS!":PRINT:PRINT"ALL KLINGONS DESTROYED":PRINT
:PRINT"YOU HAVE SAVED THE FEDERATION,":PRINT:PRINT"AND THE GALAXY!!!"
3010 PRINT:PRINT:PRINT"ANOTHER COMMAND (Y/N)";
3020 INPUT CD$:IF CD$="Y" THEN QW=QW+1 :RUN ELSE POKE65494,0:END
3030 CLS:PRINT:PRINT"RESIGNATION ACCEPTED":GOTO 3010
3040 CLS:PRINT"YOU ARE THE NEW COMMANDER OF THESTARSHIP ENTERPRISE.":PRINT"YOUR
MISSION IS TO SEEK OUT AND DESTROY ALL KLINGONS."
3050 PRINT:PRINT"TO HELP YOU,YOU HAVE AN":PRINT"IMPRESSIVE ARRAY OF CONTROLS AT
YOUR DISPOSAL."
3060 PRINT:PRINT"TO PROTECT YOURSELF YOU MAY USE THE SHIELD CONTROL (PRESS 'S').
 IT'S POWER DIMINISHES DUE TO    ENEMY FIRE."
3070 PRINT:INPUT"PRESS ENTER";KK$:CLS
3080 PRINT"TO DESTROY THE ENEMY YOU HAVE   TWO TYPES OF WEAPON.":PRINT:PRINT"PHA
SERS (PRESS 'P') WHICH DRAINSTHE ENEMIES POWER ACCORDING TO  THE ENERGY UNITS US
ED AND THE   DISTANCE."
3090 PRINT"PHOTON TORPEDOES (PRESS 'T')    WHICH YOU MUST ENTER THE CORRECTDIREC
TION."
3100 PRINT"1 2 3"
3110 PRINTCHR$(143)+CHR$(92)+CHR$(58)+CHR$(47)
3120 PRINT"4-+-5"
3130 PRINTCHR$(143)+CHR$(47)+CHR$(58)+CHR$(92)
3140 PRINT"6 7 8"
3150 INPUT"PRESS ENTER";Q$:CLS
3160 PRINT"THE KLINGONS ARE MOBILE IN THE  GALAXY WHICH MEANS YOU MUST FINDTHEM
BEFORE YOU CAN DESTROY THEM"
3170 PRINT"TO MOVE THROUGH THE GALAXY YOU  MUST USE THE WARP DRIVE CONTROL (PRES
S 'W').YOU MUST FIRST ENTERTHE DIRECTION (1-LEFT/2-RIGHT)
3180 PRINT"TO DETERMINE YOUR DIRECTION YOU MUST KNOW WHERE YOU ARE IN THE  GALAX
Y,WHICH IS SET OUT AS       FOLLOWS."
3190 PRINT:PRINT"/1/2/3/4/5/6/7/8/9/10/11/12/13/-/14/15/16/"
3200 PRINT"PRESS ENTER";:INPUT Q:CLS
3210 PRINT"YOU MUST THEN ENTER A WARP       FACTOR WHICH IS ESTABLISHED BY  SUBTR
ACTING YOUR CURRENT SECTOR NUMBER FROM THAT OF YOUR         INTENDED ONE OR VICE
VERSA.""
3220 PRINT:PRINT"TO MANOEUVRE THE ENTERPRISE      AROUND YOUR CURRENT SECTOR YOU
 MUST USE THE IMPULSE DRIVE(PRESSARROW KEYS AND 'H' TO HALT).
3230 PRINT:PRINT"YOU MAY OFTEN WANT A REPORT OF  YOUR CURRENT SECTOR(PRESS 'R').
"
3240 PRINT:INPUT"PRESS ENTER";Q:CLS
3250 PRINT"DURING YOUR MISSION YOU WILL     PROBABLY RUN OUT OF TORPEDOES   OR YO
UR ENERGY UNITS MAY BECOME LOW. TO REPLENISH THESE YOU CAN DOCK WITH A STAR BASE
 IN SECTORSTWO AND TEN."
3260 PRINT"TO DOCK YOU SIMPLY MANOEUVRE THEENTERPRISE INTO THE LARGE       COLOU
RED AREA OF THE BASE.":PRINT:PRINT"YOU MAY RESIGN AT ANY TIME BY   PRESSING 'X'.
"
3270 PRINT:INPUT"PRESS ENTER TO START";Q:GOTO50
3280 IF LD=2 THEN PRINT"PERHAPS YOU SHOULD GO BACK TO   BEING A BEGINNER"
3290 IF LD=3 THEN PRINT"PERHAPS YOU ARE NOT SUCH AN     EXPERT AS YOU THINK!"
3300 GOTO3010
```

Clarence the caterpillar is always on the look out for a quick snack to speed him on his way to butterflyhood. You guide him through the mushroom patch, picking up points as Clarence munches on leaves, twigs, flowers, apples and acorns. But beware this is a very addictive game, you'll want to keep playing until you've collected that high score! The controls are extremely simple — just use the Z and M keys to move left and right through the maze of mushrooms. Full instructions are included in the program. Happy munching!

```
 10 REM caterpillar (c) Paul Newell
 20 REM March 28th 1983
 30 T%=0:S%=0
 40 GOTO 890
 50 MODE 2
 60 VDU 23;8202;0;0;0;
 70 VDU 23,240,153,90,24,219,90,219,90,219
 80 VDU 23,241,6,24,126,223,191,191,223,126
 90 VDU 23,242,60,126,255,255,24,24,24,24
100 VDU 23,243,0,0,0,15,63,127,255,255
110 VDU 23,244,0,0,0,0,224,240,248,248
120 VDU 23,245,7,7,7,7,7,0,0,0
130 VDU 23,246,8,28,28,107,127,107,8,28
140 VDU 23,247,128,112,248,252,254,126,31,7
150 VDU 23,248,133,201,113,49,119,30,4,4,
160 VDU 23,249,0,24,44,94,94,191,191,255
170 VDU 23,250,0,255,126,60,7,0,0,0
180 VDU 5
190 X%=600:Y%=300
200 TIME=0
210 REPEAT
220 SOUND0,-15,4,0.9
230 PROCCATERPILLAR
240 PROCMUSHROOM
250 B%=247:C%=1
```

```
260 IF TIME>1000 AND TIME<1500 THEN PROCFRUIT(B%,C%)
270 D%=248:E%=7
280 IF TIME>3000 AND TIME<3500 THEN PROCFRUIT(D%,E%)
290 F%=242:G%=2
300 IF TIME>3500 AND TIME<4500 THEN PROCFRUIT(F%,G%)
310 H%=246:I%=5
320 IF TIME>5000 AND TIME<5500 THEN PROCFRUIT(H%,I%)
330 J%=241:K%=6
340 IF TIME>6500 AND TIME<7000 THEN PROCFRUIT(J%,K%)
350 IF RND(100)=1 THEN PROCACORN
360 PROCCHECKHIT
370 UNTIL TIME>7500:GOTO 200
380 DEFPROCCATERPILLAR
390 MOVE X%,Y%
400 GCOL0,6
410 VDU 240
420 A%=INKEY(-98)
430 IF A%=-1 ANDX%>200 THEN X%=X%-8:VDU 127
440 A%=INKEY(-102)
450 IF A%=-1 ANDX%<1080 THEN X%=X%+8:VDU 127
460 MOVE X%,Y%:VDU 240
470 ENDPROC
480 DEFPROCMUSHROOM
490 VDU 4
500 L%=RND(17)
510 COLOUR 2
520 PRINTTAB(L%,1):CHR$(243):CHR$(244)
530 COLOUR 3
540 PRINTTAB(L%,2):CHR$(245)
```

```
550 VDU 30:VDU 11
560 VDU 5
570 ENDPROC
580 DEFPROCFRUIT(M%,N%)
590 SOUND1,-15,20,1
600 VDU 4
610 COLOUR N%
620 PRINTTAB(RND(20),1);CHR$(M%)
630 VDU 5
640 ENDPROC
650 DEFPROCACORN
660 VDU 4
670 O%=RND(18)
680 COLOUR 11
690 PRINTTAB(O%,1);CHR$(249)
700 COLOUR 10
710 PRINTTAB(O%,2);CHR$(250)
720 VDU 5
730 ENDPROC
740 DEFPROCCHECKHIT
```



Caterpillar

```
750 IF POINT(X%+32,Y%)=1 THEN SOUND1,-15,5,5:S%=S%+5
760 IF POINT(X%+32,Y%)=7 THEN SOUND1,-15,15,5:S%=S%+10
770 IF POINT(X%+32,Y%)=5 THEN SOUND1,-15,25,5:S%=S%+15
780 IF POINT(X%+32,Y%)=6 THEN SOUND1,-15,35,5:S%=S%+20
790 IF POINT(X%+32,Y%)=11 THEN SOUND1,-15,100,5:S%=S%+50
800 IF POINT(X%+32,Y%)=2 THEN PROCCRASH
810 ENDPROC
820 DEFPROCCRASH
830 FOR P%=-15 TO -1
840 SOUND0,P%,4,1
850 NEXT P%
860 *FX15,0
870 IF S%>T% THEN T%=S%
880 G$=GET$
890 CLS:CLEAR
900 MODE 7
```

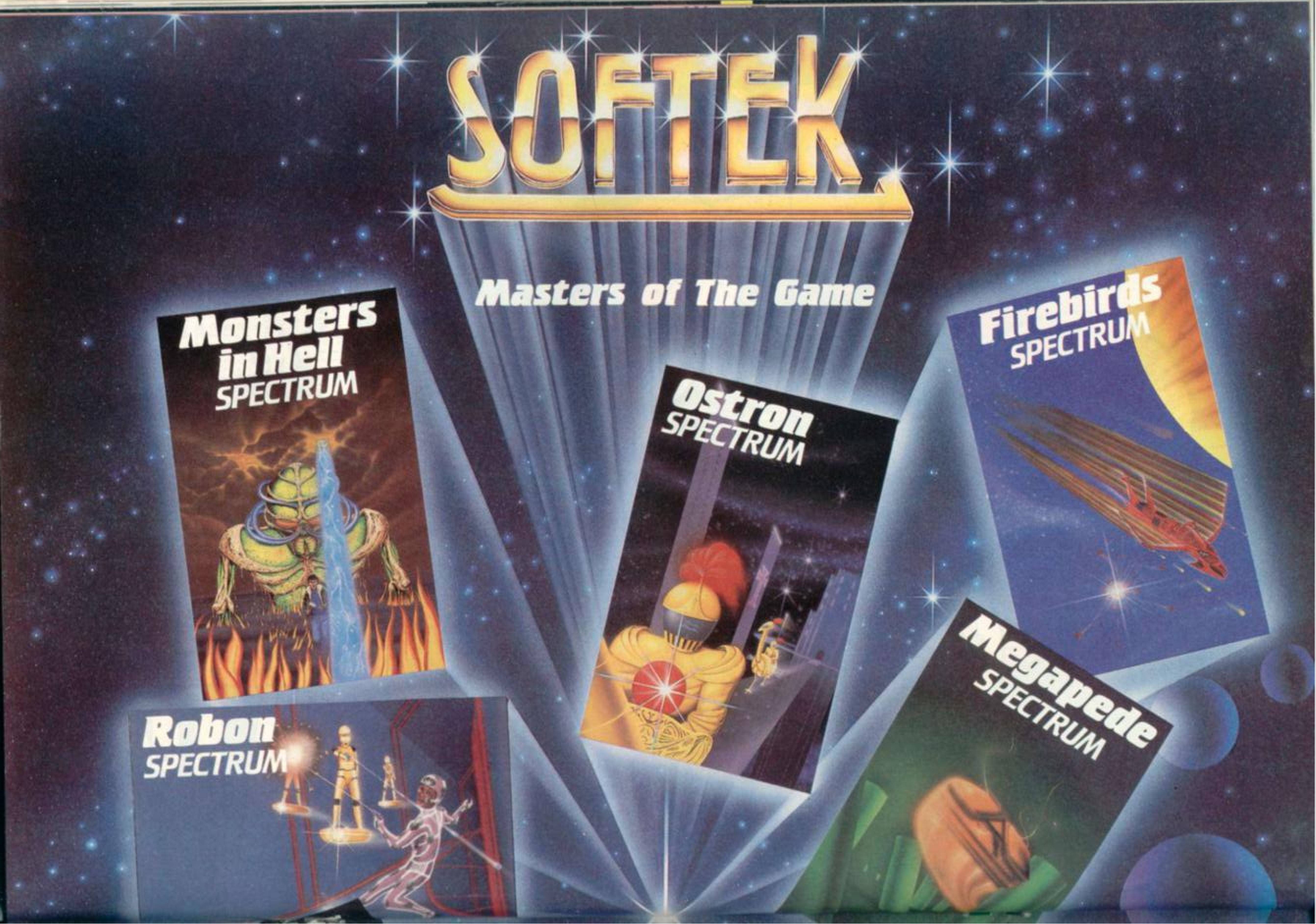
```
 910 PRINTTAB(12,2);CHR$(129);CHR$(141);"CATERPILLAR"
 920 PRINTTAB(12,3);CHR$(129);CHR$(141);"CATERPILLAR"
 930 PRINTTAB(2,6);CHR$(130);"Guide the caterpillar through the"
 940 PRINTTAB(1,7);CHR$(130);"mushroom patch.You start in autumn and "
 950 PRINTTAB(1,8);CHR$(130);"work your way through the 4 seasons"
 960 PRINTTAB(1,9);CHR$(130);"you score points by eating the food"
 970 PRINTTAB(1,10);CHR$(130);"on the way "
 980 PRINTTAB(5,12);CHR$(131);"leaves.....5 points"
 990 PRINTTAB(5,13);CHR$(131);"twigs.....10 points"
1000 PRINTTAB(5,14);CHR$(131);"flowers...15 points"
1010 PRINTTAB(5,15);CHR$(131);"apples....20 points"
1020 PRINTTAB(4,16);CHR$(131);CHR$(136);"acorns....50 points"
1030 PRINTTAB(12,17);CHR$(133);CHR$(136);"[Z M]"
1040 PRINTTAB(10,18);CHR$(134);"HIGH SCORE ";T%
1050 PRINTTAB(10,20);CHR$(134);"YOUR SCORE ";S%
1060 PRINTTAB(5,23);CHR$(131);CHR$(136);"PRESS ANY KEY TO START."
1070 S%=0
1080 G$=GET$:GOTO 50
```

BY PAUL NEWELL

RUNS ON A BBC B

IN 32K

Illustration: Terry Rogers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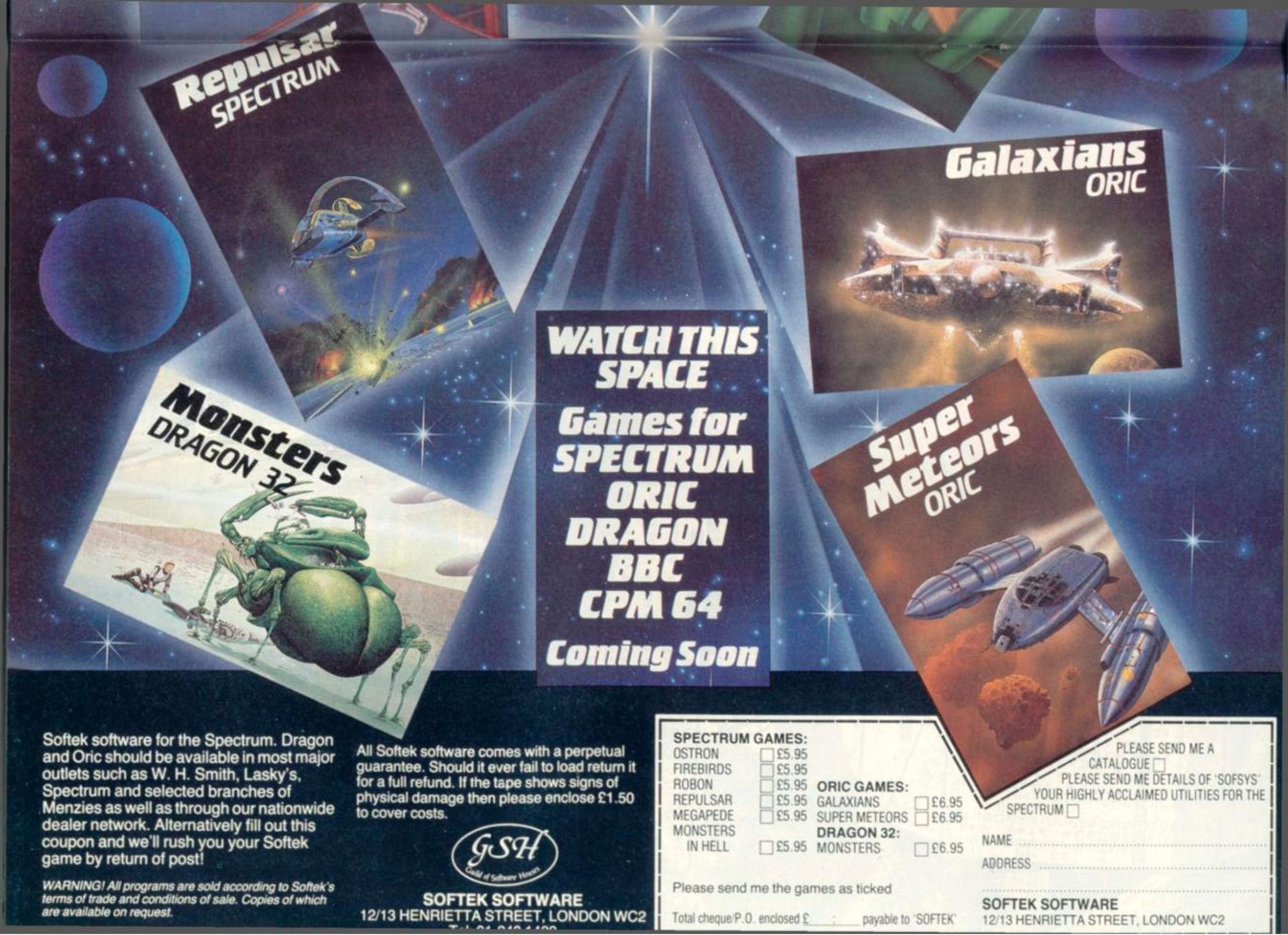
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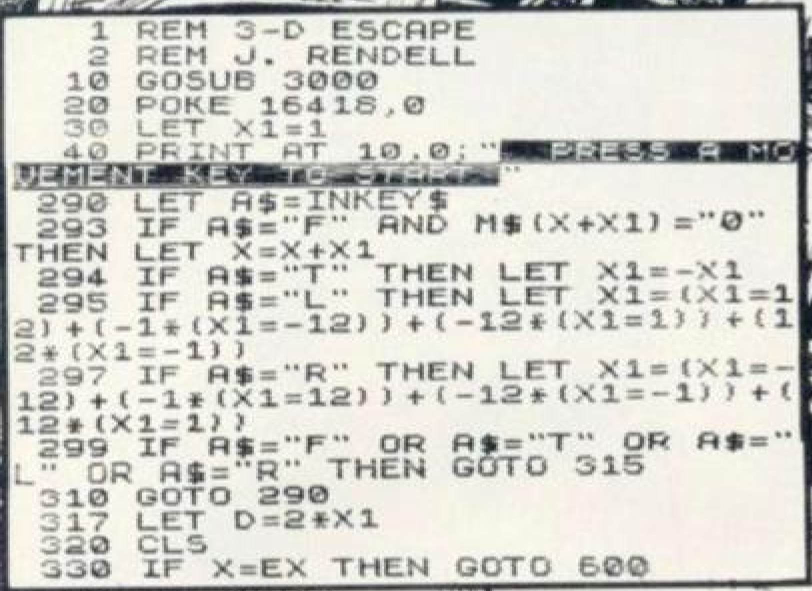
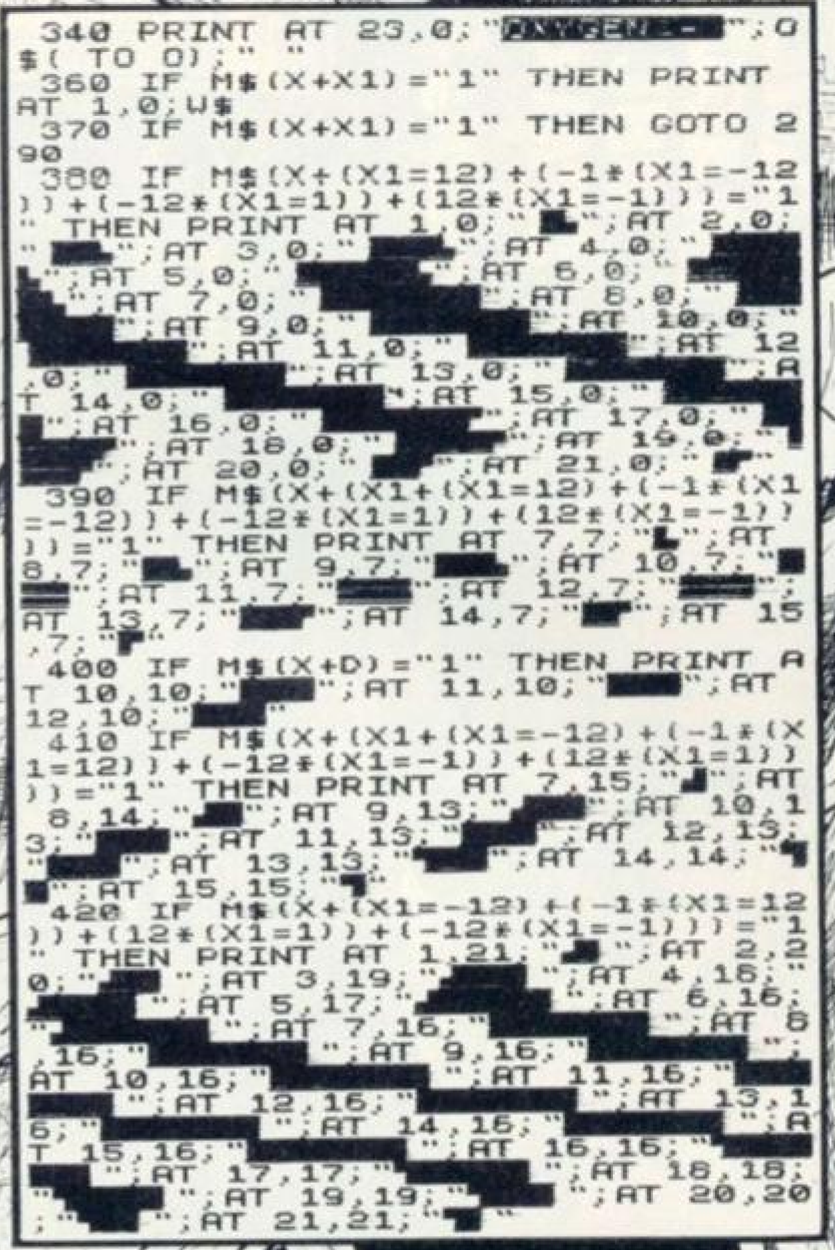
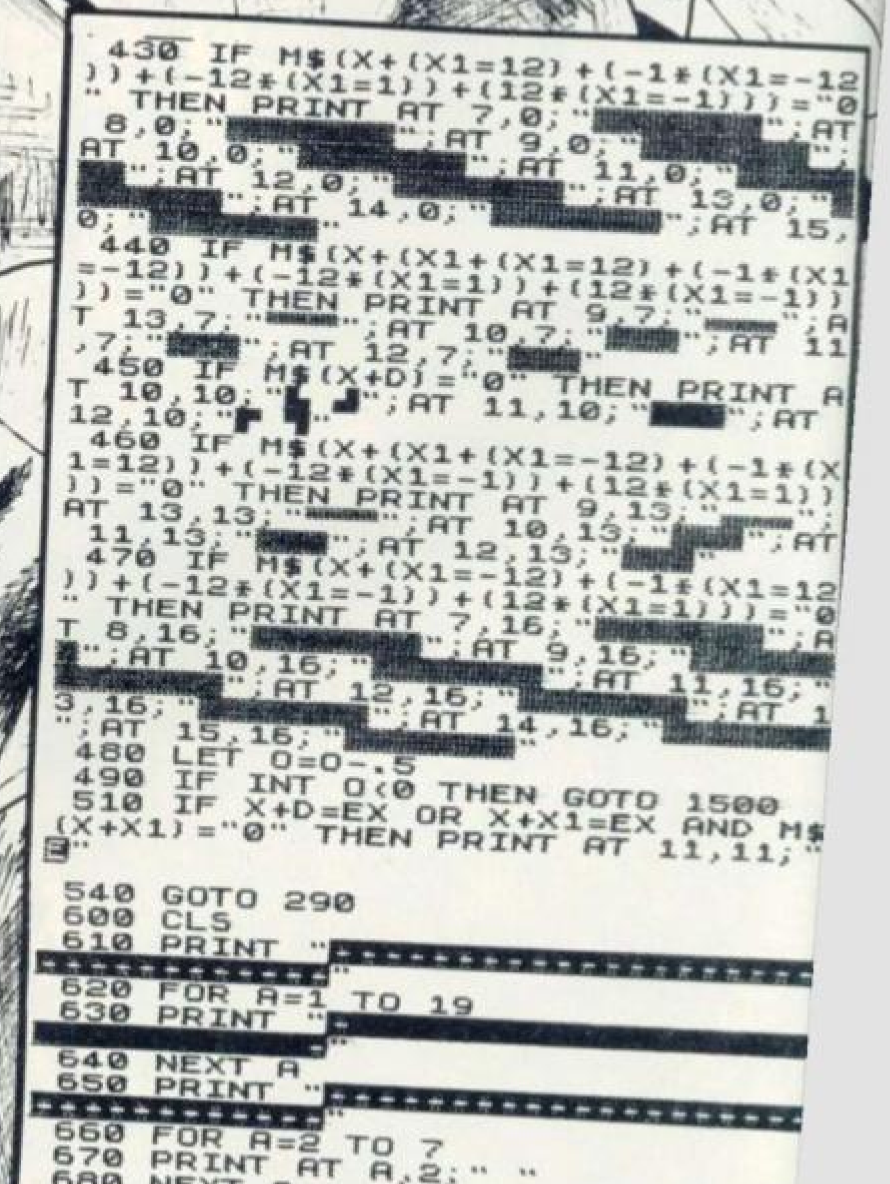
3D ESCAPE



```
   1 REM 3-D ESCAPE
   2 REM J. RENDELL
  10 GOSUB 3000
  20 POKE 16418,0
  30 LET X1=1
  40 PRINT AT 10,0;" PRESS A MO
VEMENT KEY TO START "
 290 LET A$=INKEY$
 293 IF A$="F" AND M$(X+X1)="0"
THEN LET X=X+X1
 294 IF A$="T" THEN LET X1=-X1
 295 IF A$="L" THEN LET X1=(X1=1
2)+(-1*(X1=-12))+(-12*(X1=1))+(1
2*(X1=-1))
 297 IF A$="R" THEN LET X1=(X1=-
12)+(-1*(X1=12))+(-12*(X1=-1))+(
12*(X1=1))
 299 IF A$="F" OR A$="T" OR A$="
L" OR A$="R" THEN GOTO 315
 310 GOTO 290
 317 LET D=2*X1
 320 CLS
 330 IF X=EX THEN GOTO 600
```

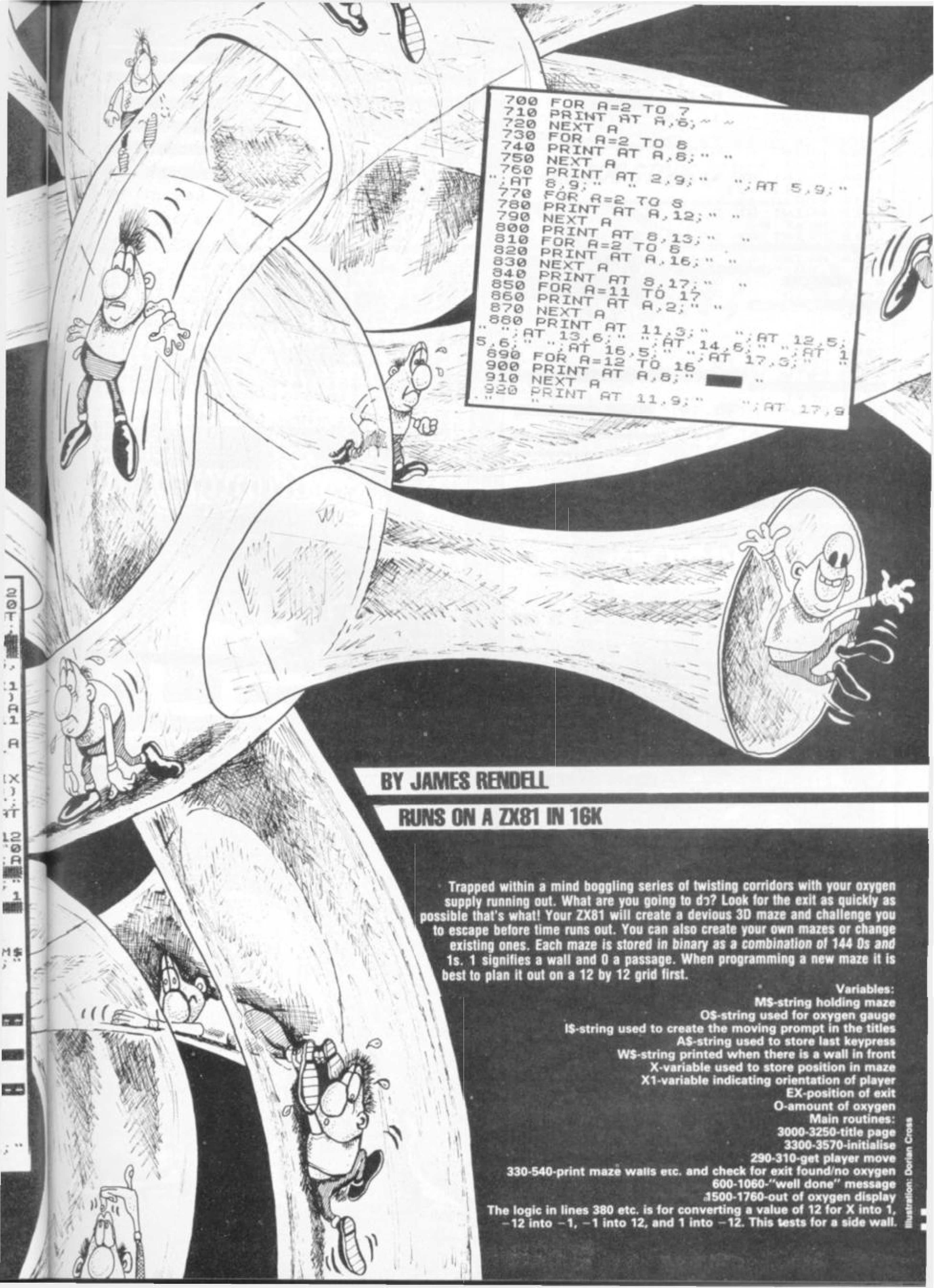


```
 340 PRINT AT 23,0;"OXYGEN - ";O
$( TO O);" "
 360 IF M$(X+X1)="1" THEN PRINT
AT 1,0;W$
 370 IF M$(X+X1)="1" THEN GOTO 2
90
 380 IF M$(X+(X1=12)+(-1*(X1=-12
))+(-12*(X1=1))+(12*(X1=-1)))="1
" THEN PRINT AT 1,0;"█";AT 2,0;
"██";AT 3,0;"████";AT 4,0;"████
";AT 5,0;"██████";AT 6,0;"████
";AT 7,0;"████████";AT 8,0;"
██";AT 9,0;"██████████";AT 10,0;"
████████";AT 11,0;"██████";AT 12
,0;"██████";AT 13,0;"████████";A
T 14,0;"██████";AT 15,0;"████
█";AT 16,0;"██████";AT 17,0;"
██";AT 18,0;"██████";AT 19,0;"
";AT 20,0;"████";AT 21,0;"██"
 390 IF M$(X+(X1+(X1=12)+(-1*(X1
=-12))+(-12*(X1=1))+(12*(X1=-1))
))="1" THEN PRINT AT 7,7;"█";AT
8,7;"██";AT 9,7;"███";AT 10,7;"█
██";AT 11,7;"███";AT 12,7;"███";
AT 13,7;"███";AT 14,7;"██";AT 15
,7;"█"
 400 IF M$(X+D)="1" THEN PRINT A
T 10,10;"███";AT 11,10;"███";AT
12,10;"███"
 410 IF M$(X+(X1+(X1=-12)+(-1*(X
1=12))+(-12*(X1=-1))+(12*(X1=1))
))="1" THEN PRINT AT 7,15;"█";AT
 8,14;"██";AT 9,13;"███";AT 10,1
3;"███";AT 11,13;"███";AT 12,13;
"███";AT 13,13;"███";AT 14,14;"█
█";AT 15,15;"█"
 420 IF M$(X+(X1=-12)+(-1*(X1=12
))+(12*(X1=1))+(-12*(X1=-1)))="1
" THEN PRINT AT 1,21;"█";AT 2,2
0;"██";AT 3,19;"████";AT 4,16;"
██████";AT 5,17;"██████";AT 6,16;
"██████";AT 7,16;"██████";AT 8
,16;"██████";AT 9,16;"██████";
AT 10,16;"██████";AT 11,16;"████
██";AT 12,16;"██████";AT 13,1
6;"██████";AT 14,16;"██████";A
T 15,16;"██████";AT 16,16;"████
██";AT 17,17;"██████";AT 18,18;
"████";AT 19,19;"████";AT 20,20
;"██";AT 21,21;"█"
```



```
 430 IF M$(X+(X1=12)+(-1*(X1=-12
))+(-12*(X1=1))+(12*(X1=-1)))="0
" THEN PRINT AT 7,0;"██████";AT
 8,0;"██████";AT 9,0;"██████";
AT 10,0;"██████";AT 11,0;"██████
██";AT 12,0;"██████";AT 13,0;"
0;"██████";AT 14,0;"██████";AT 15,
 440 IF M$(X+(X1+(X1=12)+(-1*(X1
=-12))+(-12*(X1=1))+(12*(X1=-1))
))="0" THEN PRINT AT 9,7;"███";A
T 13,7;"███";AT 10,7;"███";AT 11
,7;"███";AT 12,7;"███"
 450 IF M$(X+D)="0" THEN PRINT A
T 10,10;"█ █";AT 11,10;"███";AT
12,10;"█ █"
 460 IF M$(X+(X1+(X1=-12)+(-1*(X
1=12))+(-12*(X1=-1))+(12*(X1=1))
))="0" THEN PRINT AT 9,13;"███";
AT 13,13;"███";AT 10,13;"███";AT
 11,13;"███";AT 12,13;"███"
 470 IF M$(X+(X1=-12)+(-1*(X1=12
))+(-12*(X1=-1))+(12*(X1=1)))="0
" THEN PRINT AT 7,16;"██████";A
T 8,16;"██████";AT 9,16;"██████
█";AT 10,16;"██████";AT 11,16;"
██████";AT 12,16;"██████";AT 1
3,16;"██████";AT 14,16;"██████
";AT 15,16;"██████"
 480 LET O=O-.5
 490 IF INT O<0 THEN GOTO 1500
 510 IF X+D=EX OR X+X1=EX AND M$
(X+X1)="0" THEN PRINT AT 11,11;"
▒"

 540 GOTO 290
 600 CLS
 610 PRINT "████████████████████
████████████"
 620 FOR A=1 TO 19
 630 PRINT "████████████████████
████████████"
 640 NEXT A
 650 PRINT "████████████████████
████████████"
 660 FOR A=2 TO 7
 670 PRINT AT A,2;" "
 680 NEXT A
 690 PRINT AT 6,3;" █ ";AT 7,4;"
"
```



```
700 FOR A=2 TO 7
710 PRINT AT A,6;" "
720 NEXT A
730 FOR A=2 TO 8
740 PRINT AT A,8;" "
750 NEXT A
760 PRINT AT 2,9;"    ";AT 5,9;"
";AT 8,9;"  "
770 FOR A=2 TO 8
780 PRINT AT A,12;" "
790 NEXT A
800 PRINT AT 8,13;"  "
810 FOR A=2 TO 8
820 PRINT AT A,16;" "
830 NEXT A
840 PRINT AT 8,17;"  "
850 FOR A=11 TO 17
860 PRINT AT A,2;" "
870 NEXT A
880 PRINT AT 11,3;"  ";AT 12,5;
" ";AT 13,6;" ";AT 14,6;" ";AT 1
5,6;" ";AT 16,5;" ";AT 17,5;" "
890 FOR A=12 TO 16
900 PRINT AT A,8;" ███ "
910 NEXT A
920 PRINT AT 11,9;"    ";AT 17,9
;"  "
```

BY JAMES RENDELL

RUNS ON A ZX81 IN 16K

Trapped within a mind boggling series of twisting corridors with your oxygen supply running out. What are you going to do? Look for the exit as quickly as possible that's what! Your ZX81 will create a devious 3D maze and challenge you to escape before time runs out. You can also create your own mazes or change existing ones. *Each maze is stored in binary as a combination of 144 0s and* 1s. 1 signifies a wall and 0 a passage. When programming a new maze it is best to plan it out on a 12 by 12 grid first.

Variables:
M$-string holding maze
O$-string used for oxygen gauge
I$-string used to create the moving prompt in the titles
A$-string used to store last keypress
W$-string printed when there is a wall in front
X-variable used to store position in maze
X1-variable indicating orientation of player
EX-position of exit
O-amount of oxygen

Main routines:
3000-3250-title page
3300-3570-initialise
290-310-get player move
330-540-print maze walls etc. and check for exit found/no oxygen
600-1060-"well done" message
1500-1760-out of oxygen display

The logic in lines 380 etc. is for converting a value of 12 for X into 1, −12 into −1, −1 into 12, and 1 into −12. This tests for a side wall.

Illustration: Dorian Cross

```
 930 FOR A=11 TO 17
 940 PRINT AT A,14;" ███ "
 950 NEXT A
 960 PRINT AT 12,15;" ";AT 13,16
;" ";AT 14,17;" "
 970 FOR A=11 TO 17
 980 PRINT AT A,20;" "
 990 NEXT A
1000 PRINT AT 11,21;"  ";AT 14,2
1;" ";AT 17,21;" "
1010 FOR A=11 TO 16
1020 PRINT AT A,25;" "
1030 NEXT A
1040 PRINT AT 17,25;"0";AT 16,25
;"▄"
1050 PRINT AT 3,20;"YOU ESCAPED"
;AT 5,20;"YOU HAD ";INT O;AT 7,2
0;"OXYGEN";AT 9,20;"UNITS LEFT▟"
1055 PRINT AT 19,4;"PRESS ANY KE
Y FOR REPLAY"
1060 IF INKEY$="" THEN GOTO 1060
1070 CLS
1080 RUN
1500 CLS
1510 FOR A=1 TO 22
1520 PRINT "██████████████████████
██████████"
1530 NEXT A
1535 PRINT AT 3,10;"OXYGEN GAUGE
"
1540 PRINT AT 5,1;"▀▀▀▀▀▀▀▀▀▀▀▀▀
▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀"
1550 PRINT AT 12,1;"▀▀▀▀▀▀▀▀▀▀▀▀
▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀"
1560 FOR A=6 TO 1$
1570 PRINT AT A,1;"▌           █
██████████████████"
1580 NEXT A
1590 PRINT AT 13,1;"0";AT 13,14;
"10";AT 13,28;"20"
1600 FOR A=12 TO 2 STEP -1
1610 PRINT AT 6,A;"█";AT 7,A;"█"
;AT 8,A;"█";AT 9,A;"█";AT 10,A;"
█";AT 11,A;"█"
1620 NEXT A
1630 FOR A=6 TO 11
1640 PRINT AT A,3;" ████ ████ █ ███
████ "
1650 NEXT A
1670 PRINT AT 6,4;"  ";AT 8,4;"
";AT 11,4;" "
1680 PRINT AT 7,8;" █ ";AT 8,9;"
"
1690 PRINT AT 6,13;"   ";AT 7,16
;" ";AT 8,16;" ";AT 9,14;" "
1700 PRINT AT 6,18;"     █ ██ "
1710 PRINT AT 7,25;"  "
1720 FOR A=8 TO 11
1730 PRINT AT A,25;"▌▐"
1740 NEXT A
1750 PRINT AT 18,3;"PRESS ANY KE
Y FOR REPLAY"
1760 IF INKEY$="" THEN GOTO 1760
1770 CLS
1780 RUN
3000 PRINT "**********************
**********"
3010 FOR A=1 TO 19
3020 PRINT "*█████████████████████
█████████*"
3030 NEXT A
3035 PRINT "**********************
**********"
3040 FOR A=1 TO 8
3050 PRINT AT A,2;" "
3060 NEXT A
3070 PRINT AT 1,2;"   ";AT 4,2;"
  ";AT 8,2;"  "
3080 PRINT AT 2,7;"   ";AT 4,7;"
   ";AT 7,7;"   ";AT 3,6;" ";AT
5,10;" ";AT 6,10;" "
3090 FOR A=3 TO 6
3100 PRINT AT A,12;" "
3110 NEXT A
3120 PRINT AT 3,13;"   ";AT 6,13
;" "
3130 PRINT AT 4,17;"▐██▌";AT 5,1
7;"▐▄▄▌";AT 6,17;"▙▄▄▟";AT 3,18;
"▄▄"
3140 PRINT AT 4,22;"▄";AT 5,22;
"▄▄";AT 5,22;"▗"
3150 PRINT AT 4,25;"E"
3160 PRINT AT 11,10;"INSTRUCTION
S"
3170 PRINT AT 12,10;"▀▀▀▀▀▀▀▀▀▀▀▀
▀"
3180 PRINT AT 14,2;"YOU ARE TRAP
PED IN A COMPLEX"
3190 PRINT AT 15,1;"MAZE,ALL YOU
 HAVE TO DO IS"
3200 PRINT AT 16,1;"ESCAPE.USE -
 F-FORWARD"
3210 PRINT AT 17,15;"T-TURN AROU
ND"
3220 PRINT AT 18,15;"L-TURN LEFT
"
3230 PRINT AT 19,15;"R-TURN RIGH
T"
3240 LET I$="PRESS ANY KEY TO ST
ART THE GAME "
3241 LET I$=I$(2 TO )+I$(1)
3242 PRINT AT 21,0;I$
3250 IF INKEY$="" THEN GOTO 3241
3260 CLS
3300 LET R=INT (RND*3)+1
3310 IF R=1 THEN LET M$="1111111
111111100010000001110111011101100
01000000111100011110110001001000
11111110101111000000000111010101
01001100010101101101000000001111
11111111"
3320 IF R=2 THEN LET M$="1111111
11111101000001001101011011101100
00000000111110101010110000101100
11011000000111011101110111000000
00001101111010111101000000001111
11111222"
3330 IF R=3 THEN LET M$="1111111
111111000010000001111101010101100
00000010110101011110110001000000
11010001011111110111000111000010
01001111101101101100000000001111
11111111"
3450 LET O$="▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
▌"
3460 LET O=20
3470 LET X=INT (RND*132)+1
3480 IF M$(X)<>"0" THEN GOTO 347
0
3490 LET EX=INT (RND*132)+1
3500 IF M$(EX)<>"0" THEN GOTO 34
90
3510 IF X=EX OR X+3=EX OR X-3=EX
 OR X+12=EX OR X-12=EX THEN GOTO
 3470
3520 LET W$="▝▖
  ▗▘"
3540 FOR P=1 TO 19
3550 LET W$=W$+" ██████████████
█████████"
3560 NEXT P
3570 LET W$=W$+"▗▘
     ▝▖"
3750 RETURN
3760 CLEAR
3766 SAVE "3D-ESCAPE"
3770 RUN
```

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THE BUG STOPS HERE!

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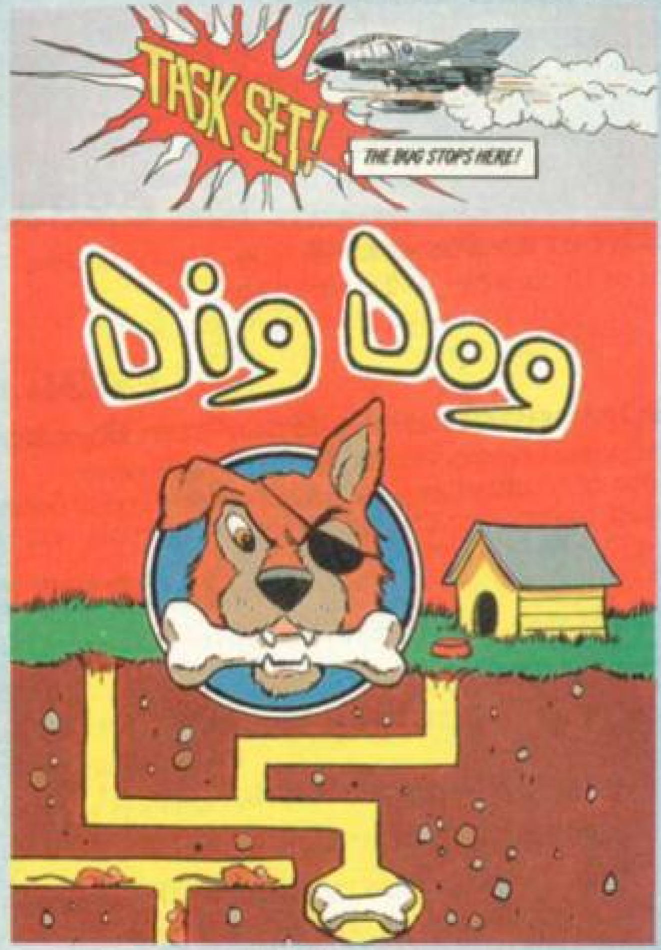
FOR THE

ORIC-1 commodore 64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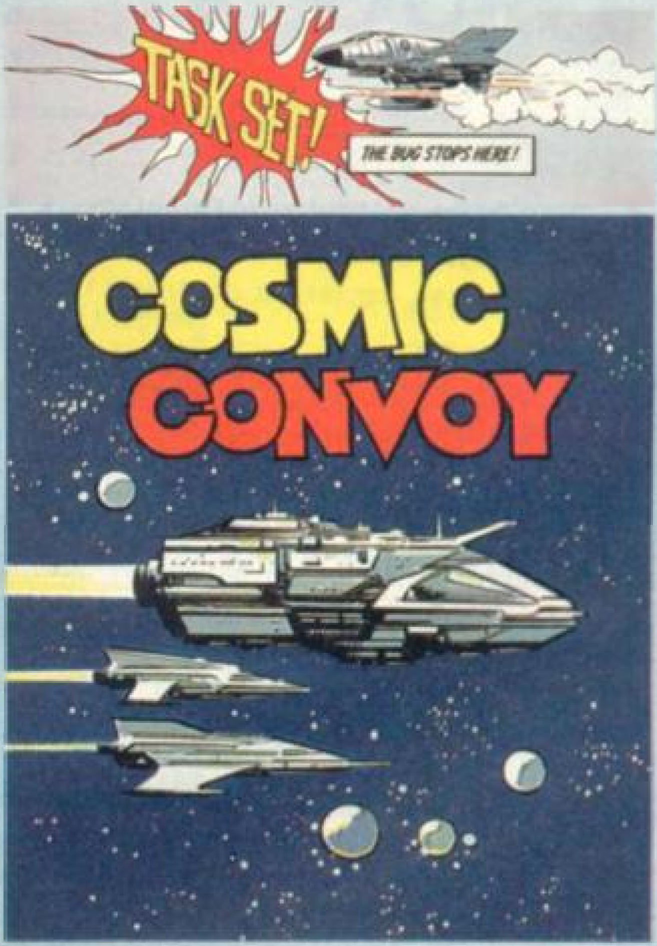
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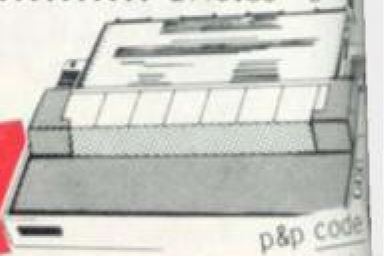

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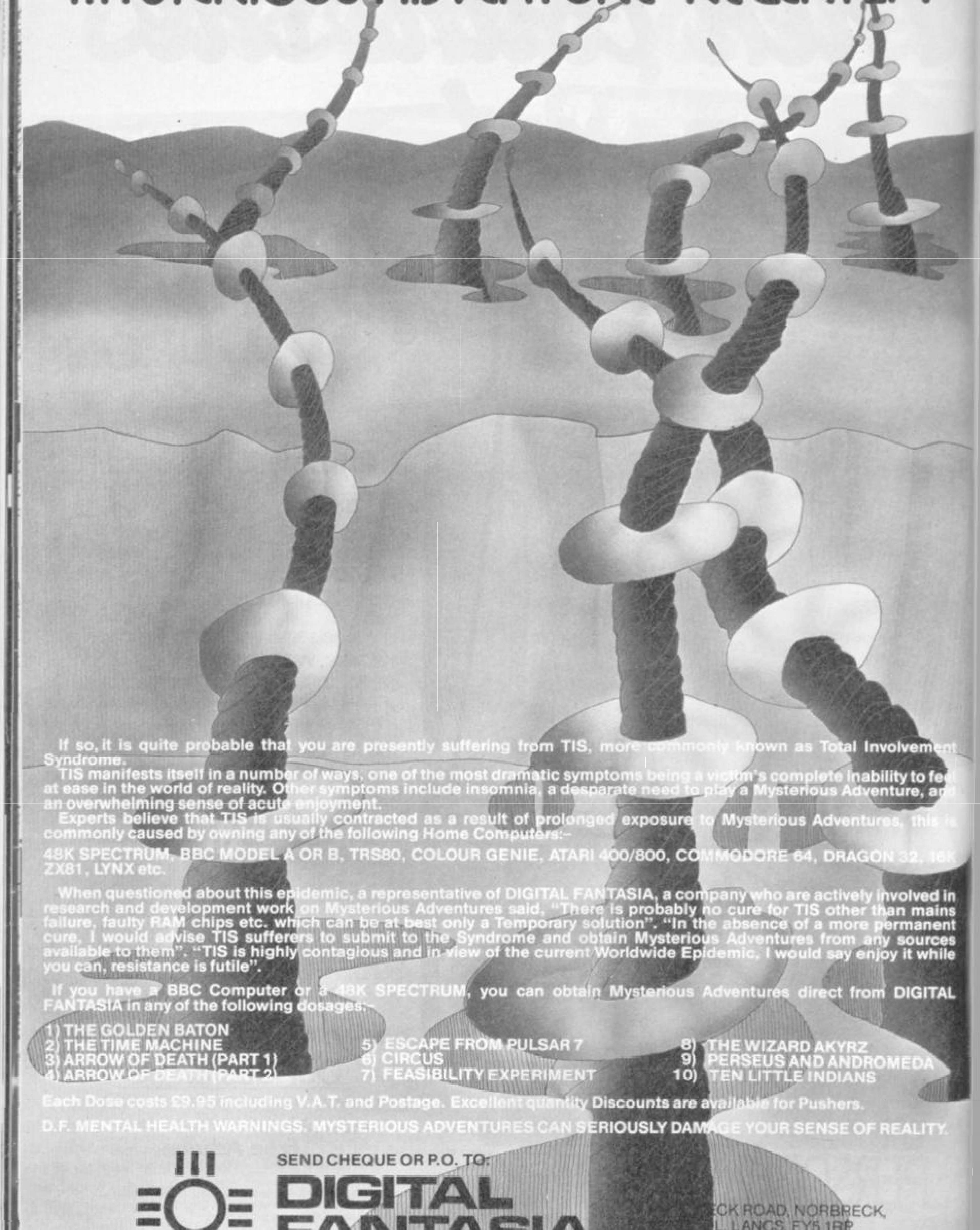

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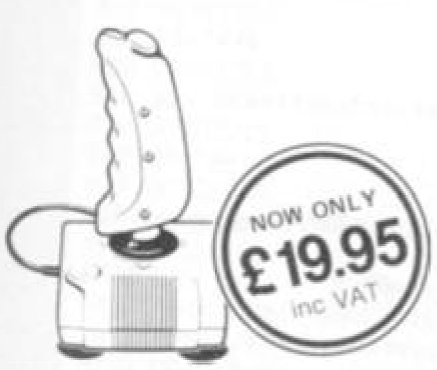

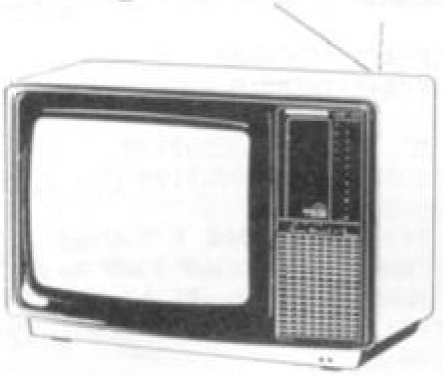

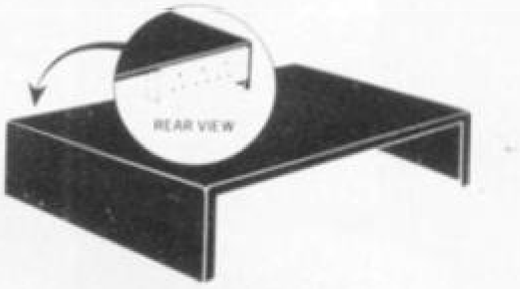

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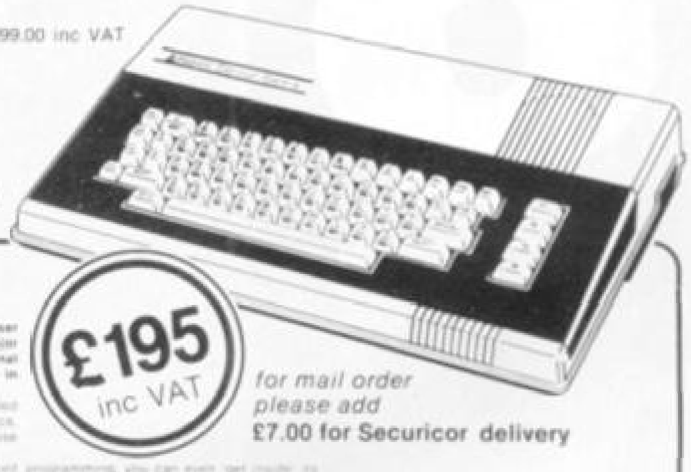

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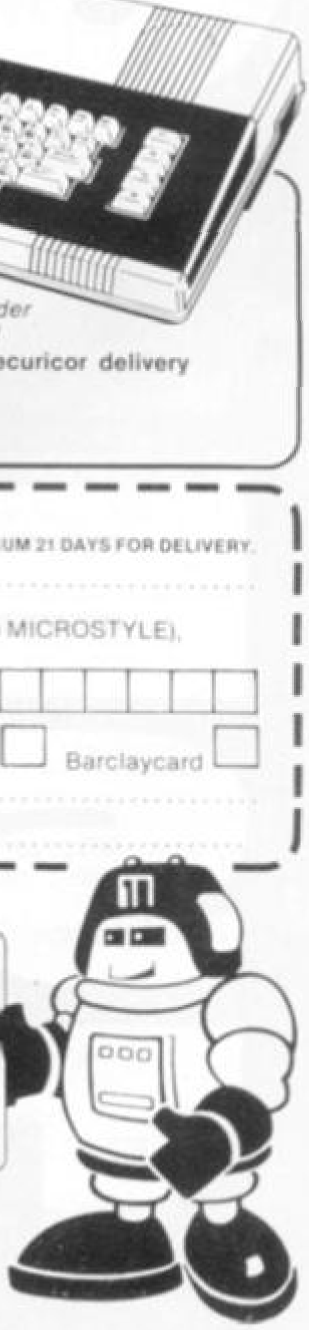

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VICQUEST

PROGRAM ONE

```
5 REM %* COPYRIGHT *%        %* S. LAWSON *%
10 V=36878:POKEV+1,154:POKE788,194:POKE37150,2
20 GOTO1000
100 C$="■■■■■■":FORF=1TON:PRINTMID$(C$,C,1);"■                        ";:NEXT
110 RETURN
150 C$="■■■■■■":FORF=1TON:PRINTMID$(C$,C,1);"■ ■                     ■ ";:NEXT
160 RETURN
200 GETG$:IFG$<>""THEN200
210 GETG$:IFG$=""THEN210
220 RETURN
1000 PRINT"■";:N=2:C=1:GOSUB130
1010 N=8:GOSUB150:N=2:GOSUB100:N=4:GOSUB150
1020 N=2:GOSUB100
1030 PRINT:PRINT"■■■■■■■■ ▌"■■■■",,"■■■■ ▌ ▌",,"■■▌ "  "■■■"■"
1040 PRINT"■■■■■■▌ ▌■■■ ■■■ ■■ ■",
1050 PRINT"■■■"■( ▌■■■■ ▌","■■|▔" "■■■■ ■■■ ""
1060 PRINTCHR$(14)"■■■TO YOU WISH","■■■NSTRUCTIONS?"
1070 GOSUB200
1080 IFG$<>"N"ANDG$<>"Y"THEN1070
1090 PRINT"■";:IFG$="N"THENRESTORE:FORF=0TO9:READD$:NEXT:GOTO1180
1100 N=3:C=7:GOSUB100:N=18:GOSUB150:N=1:GOSUB100
1110 FORF=8164TO8185:POKEF,160:POKE30720+F,6:NEXT
1120 PRINT"■■■■■╲▔●╱▔●|"
1130 PRINT"■■THERE ARE ■5■ PHASES"
1140 PRINT"■■■TO STEER THROUGH."
1150 RESTORE:FORG=0TO4:READD$,E$:PRINT"■■■■■■■■":
N=7:C=1:GOSUB150
1170 PRINT"■■■■■■■■■■■■"D$,,,E$:GOSUB200:NEXT
1180 PRINT"■":N=7:C=3:GOSUB100:GOSUB150:GOSUI 00:
PRINT"■■■■■■■■■■■■■■■KEYS",,"■■▔▔▔▔",,
1190 PRINT"■■■........LEFT","■■■■?........
-IGHT":GOSUB200
1200 POKE52,28:POKE56,28:FORF=7168TO7679:POKEF+512,127:POKEF,PEEK(F+25600):NEXT
1210 FORF=7448TO7503:READG:POKEF,G:NEXT
1220 PRINTCHR$(142)"■■SYMBOLS":POKEV-9,255
1230 PRINT"■■WALL......####","■BOMBS.....&  &","■OBSTACLES.' ' "
1240 PRINT"■TIMEGATES. % %","■INVADERS..( (","■PASSAGE... $$$":GOSUB200:POKEV-9,
240
1250 POKEV+1,204:PRINT"■":CLR:POKE198,3:POKE632,147:POK 533,131
1500 DATA"■■■1■ ▁▔~| | ╱╱▔L"
1510 DATA"■■■IMPLE IN THEORY:■■■■■JUST SPEED THROUGH■■■■THE COLOURED TUNNEL"
1520 DATA"■■■2■ |▔╲| |L♠●|"
1530 DATA"■■■VOID THE BOMBS■■■■■■■EXPLODING IN YOUR■■■■■PATH."
1540 DATA"■■■3■ ||T▁●▔♠▔▔"
1550 DATA"■■■VOID OBSTACLES IN■■■■THE TUNNEL BUT GO■■■■■THROUGH TIMEGATES."
1560 DATA"■■■4■ ╳╲▔ ╲╱╳♠▔▔▁●'
1570 DATA"■■■VOID ALL OF THE■■■ ■INVADERS WHICH■■■■■■■■■IMITATE YOUR PATH."
1580 DATA"■■■5■ ▁♠╲╱|▔o ▔♠●●♠|▔"
1590 DATA"■■■PEED THROUGH THE■■■■■ALMOST ENDLESS■■■■■■■■■TUNNEL."
1600 DATA170,81,160,81,138,5,138,85,195,153,60,102,102,60,153,195
1610 DATA129,195,231,129,153,165,153,255,146,84,56,254,56,84,146,0,60,102,195,21
9,231
1620 DATA126,60,24,56,84,124,186,146,40,68,40
1630 DATA170,238,254,124,56,56,16,16
```

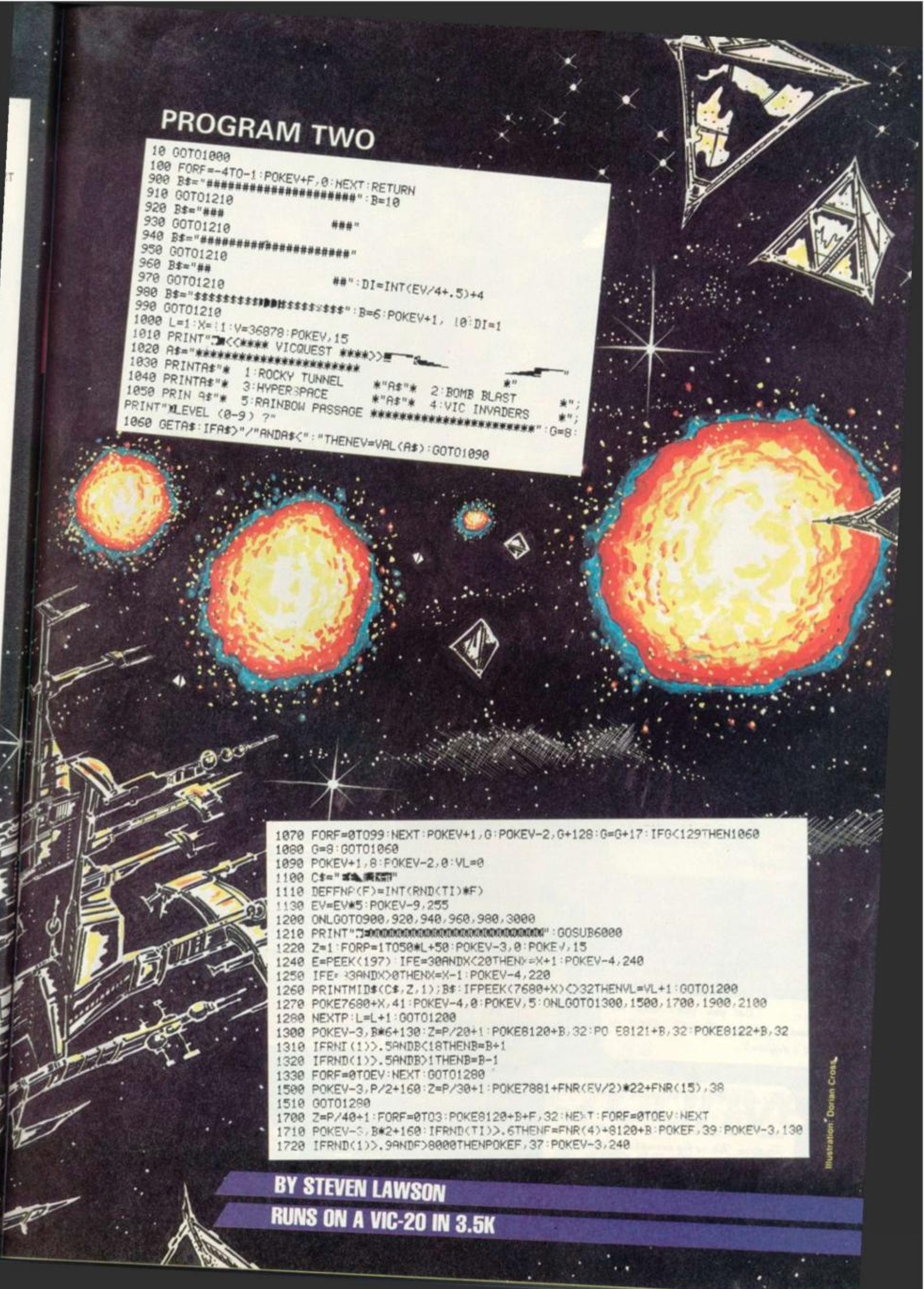
Take a voyage into the unknown in your starship. Venture through a rocky tunnel, brave the deadly minefield in space, fight off alien invaders and find your way to your ultimate goal — the rainbow passage.

This is a game with five different challenges which gets more difficult as you move towards your final objective. The first challenge is a rocky tunnel deep within the heart of a lost asteroid. Steer your ship through the many twists and turns of the tunnel avoiding the walls and outcrops of rocks. Once through the tunnel you'll find yourself in a space minefield. Dodge the blasts as the mines explode around you! Then comes the hyperspace sector. Steer through a tunnel and use your hyperspace control to avoid obstacles. Then come the invaders! Dodge them and you'll be ready to encounter the rainbow passage. There are nine skill levels to play with — 1 being the easiest. Are you brave enough to take up the challenge of VicQuest?

To save memory this program has been split into two. For details of how to load and run two part programs turn to Bug Hunter on page 108.

PROGRAM TWO

```
10 GOTO1000
100 FORF=-4TO-1:POKEV+F,0:NEXT:RETURN
900 B$="######################":B=10
910 GOTO1210
920 B$="###
930 GOTO1210                ###"
940 B$="######################"
950 GOTO1210
960 B$="##
970 GOTO1210                ##":DI=INT(EV/4+.5)+4
980 B$="$$$$$$$$$$$██$$$$$%$$$":B=6:POKEV+1, 10:DI=1
990 GOTO1210
1000 L=1:X=11:V=36878:POKEV,15
1010 PRINT"▊<<**** VICQUEST ****>>▀—▬
1020 A$="**********************
1030 PRINTA$"*  1:ROCKY TUNNEL                ▬▬"
1040 PRINTA$"*  3:HYPERSPACE     *"A$"*  2:BOMB BLAST        *"
1050 PRIN A$"*  5:RAINBOW PASSAGE *"A$"*  4:VIC INVADERS     *";
PRINT"▊LEVEL (0-9) ?"  **********************":G=8:
1060 GETA$:IFA$>"/"ANDA$<":"THENEV=VAL(A$):GOTO1090
```



```
1070 FORF=0TO99:NEXT:POKEV+1,G:POKEV-2,G+128:G=G+17:IFG<129THEN1060
1080 G=8:GOTO1060
1090 POKEV+1,8:POKEV-2,0:VL=0
1100 C$="▀▚▙▜▛"
1110 DEFFNR(F)=INT(RND(TI)*F)
1130 EV=EV*5:POKEV-9,255
1200 ONLGOTO900,920,940,960,980,3000
1210 PRINT"▊▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒":GOSUB6000
1220 Z=1:FORP=1TO50*L+50:POKEV-3,0:POKEV,15
1240 E=PEEK(197):IFE=30ANDX<20THENX=X+1:POKEV-4,240
1250 IFE=33ANDX>0THENX=X-1:POKEV-4,220
1260 PRINTMID$(C$,Z,1);B$:IFPEEK(7680+X)<>32THENVL=VL+1:GOTO1200
1270 POKE7680+X,41:POKEV-4,0:POKEV,5:ONLGOTO1300,1500,1700,1900,2100
1280 NEXTP:L=L+1:GOTO1200
1300 POKEV-3,B*6+130:Z=P/20+1:POKE8120+B,32:PO E8121+B,32:POKE8122+B,32
1310 IFRNI(1)>.5ANDB<18THENB=B+1
1320 IFRND(1)>.5ANDB>1THENB=B-1
1330 FORF=0TOEV:NEXT:GOTO1280
1500 POKEV-3,P/2+160:Z=P/30+1:POKE7881+FNR(EV/2)*22+FNR(15),38
1510 GOTO1280
1700 Z=P/40+1:FORF=0TO3:POKE8120+B+F,32:NEXT:FORF=0TOEV:NEXT
1710 POKEV-3,B*2+160:IFRND(TI)>.6THENF=FNR(4)+8120+B:POKEF,39:POKEV-3,130
1720 IFRND(1)>.9ANDF>8000THENPOKEF,37:POKEV-3,240
```

Illustration: Dorian Cross

BY STEVEN LAWSON

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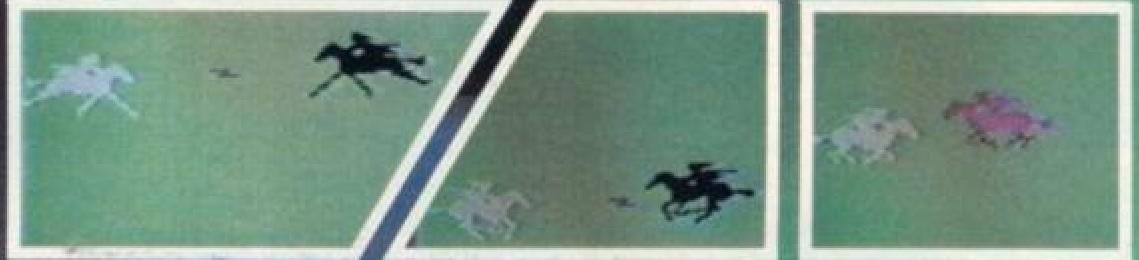
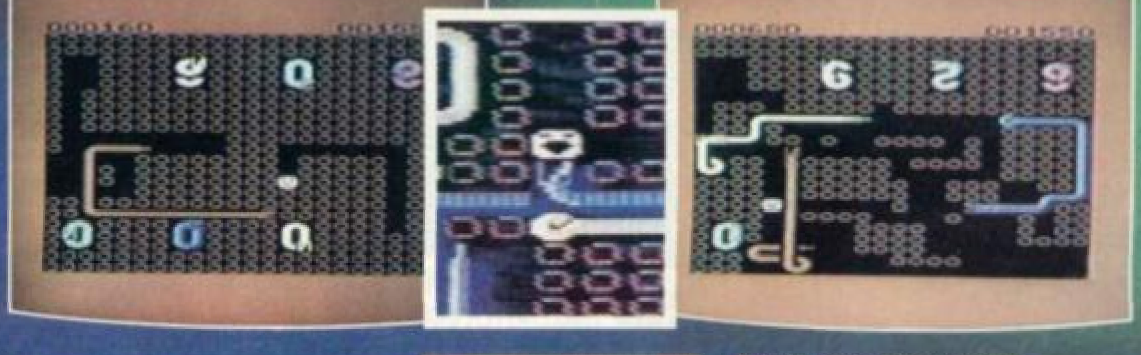


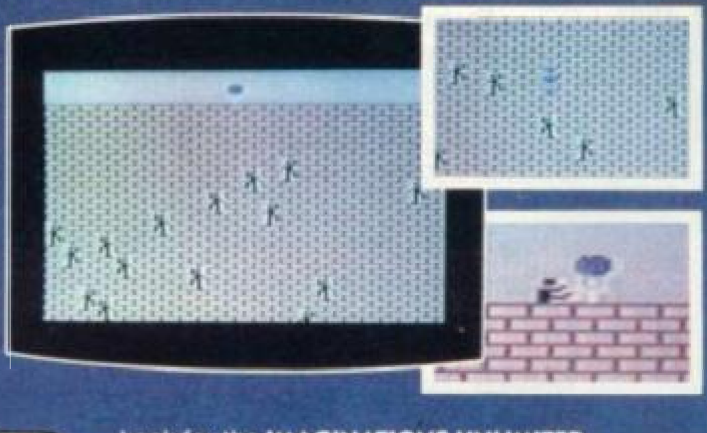
SNAKE PIT
Imagine yourself in a snake pit. The snakes and their eggs must be gobbled up before the snakes eat the Gobbler ... who must eat the last egg before the first snake. Eat the eggs, and more snakes are freed to attack. Eat all the snakes and the game begins again ... but faster! Faster!

Luke's comment: "Better than Pacman. It's a reely fun game! 12570 eggs to gobble if you want to beat my best. Get it?"*



SIEGE
Watchfulness and skill protect your castle from the encircling marauders in this **Siege**. Drop rocks to dislodge them, and their anger makes them faster ... and faster! Are you fast enough to hold them back from the top of the wall? Speed your reflexes.

Luke says — "Bet you can't keep the Glooms away as long as I did?" 4360 to beat! That's difficult.*



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*The scores quoted were achieved on a Spectrum computer — Different computers give different score potential.

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3

ZX Spectrum
BREAK SPACE
ENTER
SYMBOL SHIFT
CAPS SHIFT

Inside...
The New ZX Microdrive!
Latest software...
Latest prices...

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For some time now, the new ZX Microdrive has been the subject of much discussion. Which is only to be expected, when the object of everyone's anticipation is *completely* new to the world of computing.

Microdrive provides high-speed access to truly massive storage. With just one Microdrive, you'll have at least 85K bytes of storage, and the ability to LOAD and SAVE in mere seconds. Yet the ZX Microdrive is about the size of a Spectrum mains adaptor, and costs less than £50!

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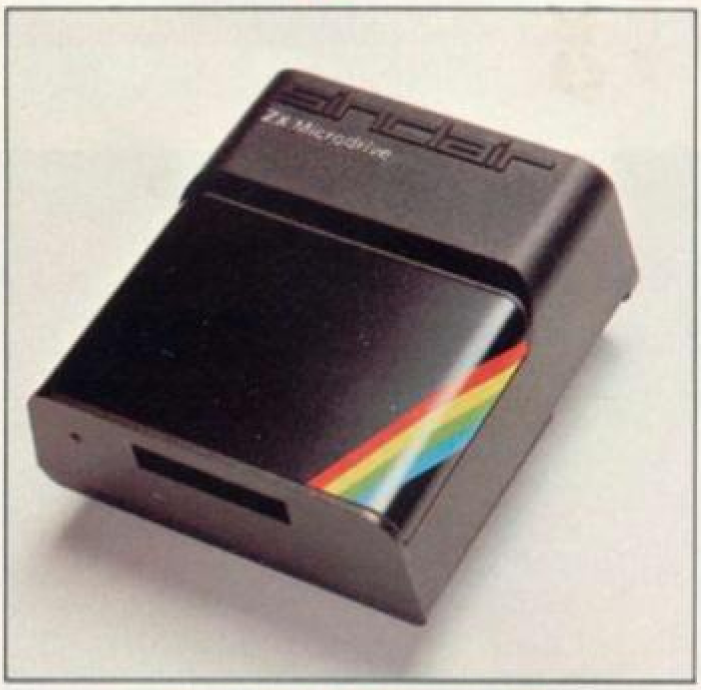
Until the next issue of Sinclair Special, and more good news ...

Nigel Searle

Nigel Searle, Managing Director, Sinclair Research Ltd.

PS: Come and see us – and all that's new at Sinclair – at the PCW Show, Barbican Centre, from Sept 28th to Oct. 2nd. We'll be pleased to see you!

ZX Microdrive System preview!



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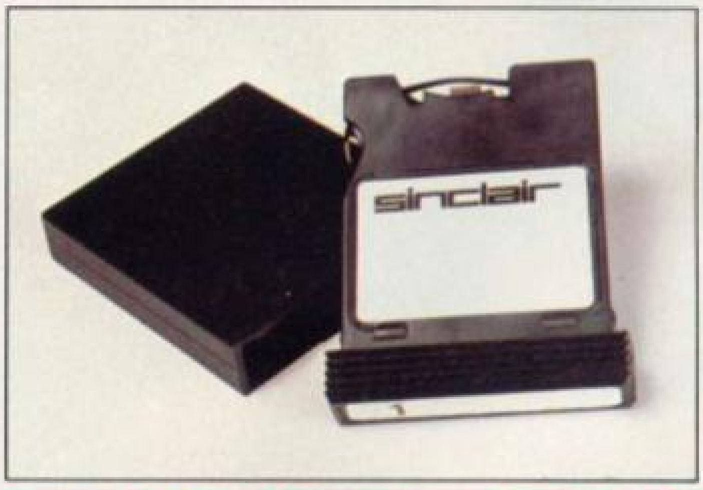

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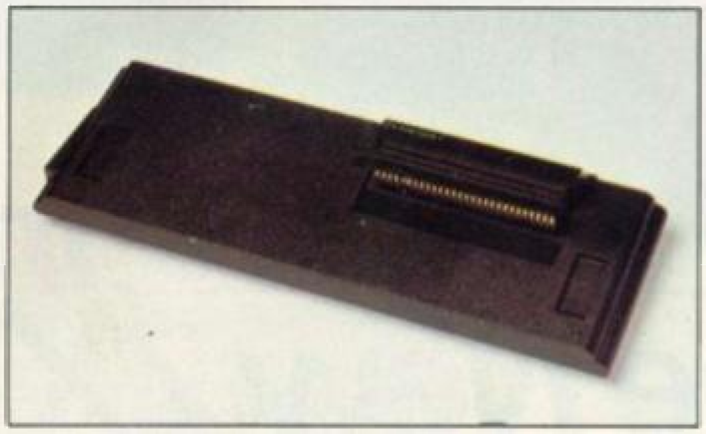

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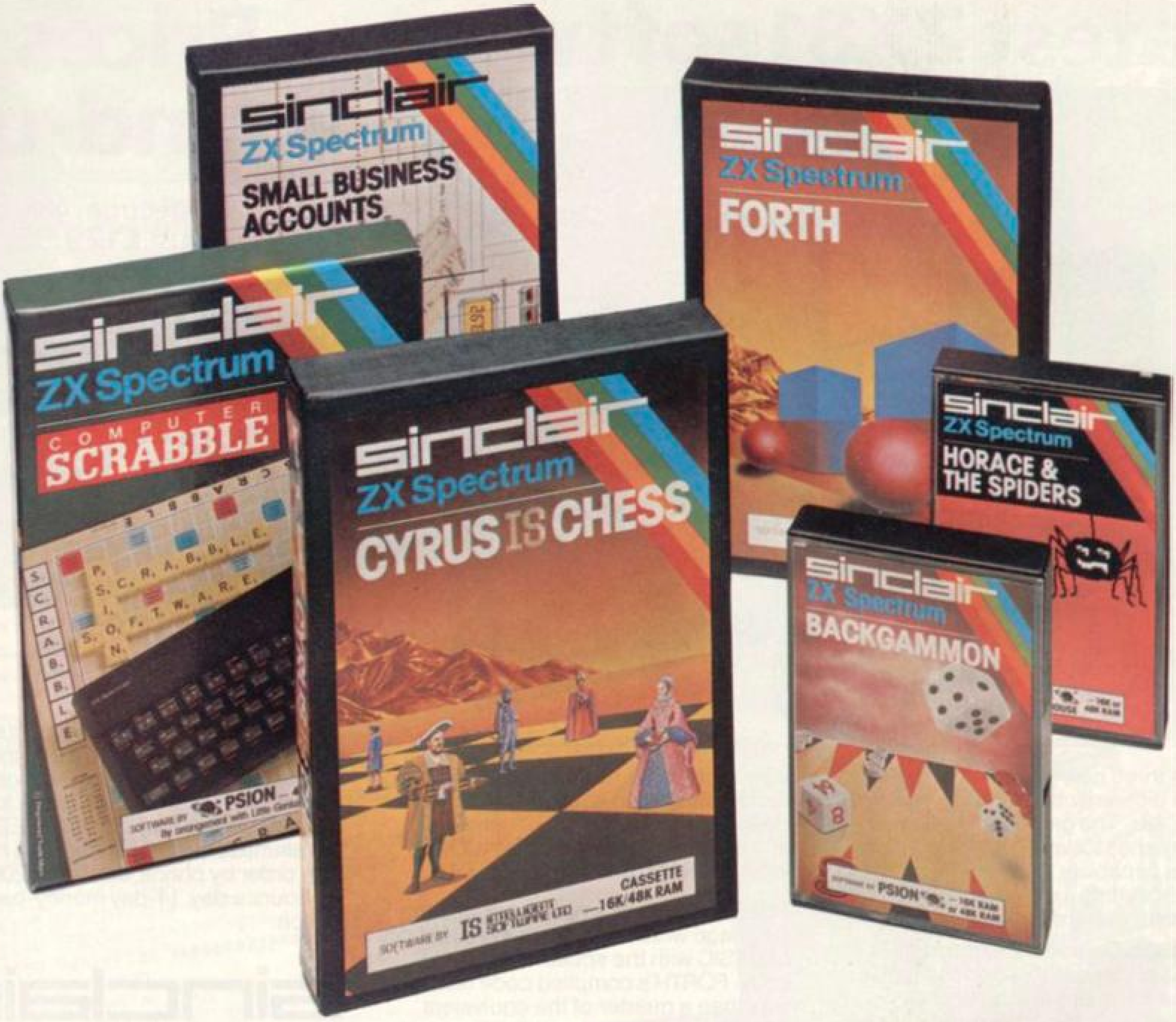
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	G25/S:Scrabble	4024	15.95	
	L1 /S:FORTH	4400	14.95	
	B6 /S:Small Business Accounts	4605	12.95	
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	G24: City Patrol	2123	4.95	
	L1: FORTH	2400	14.95	
			TOTAL £	

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ZX Microdrive information request

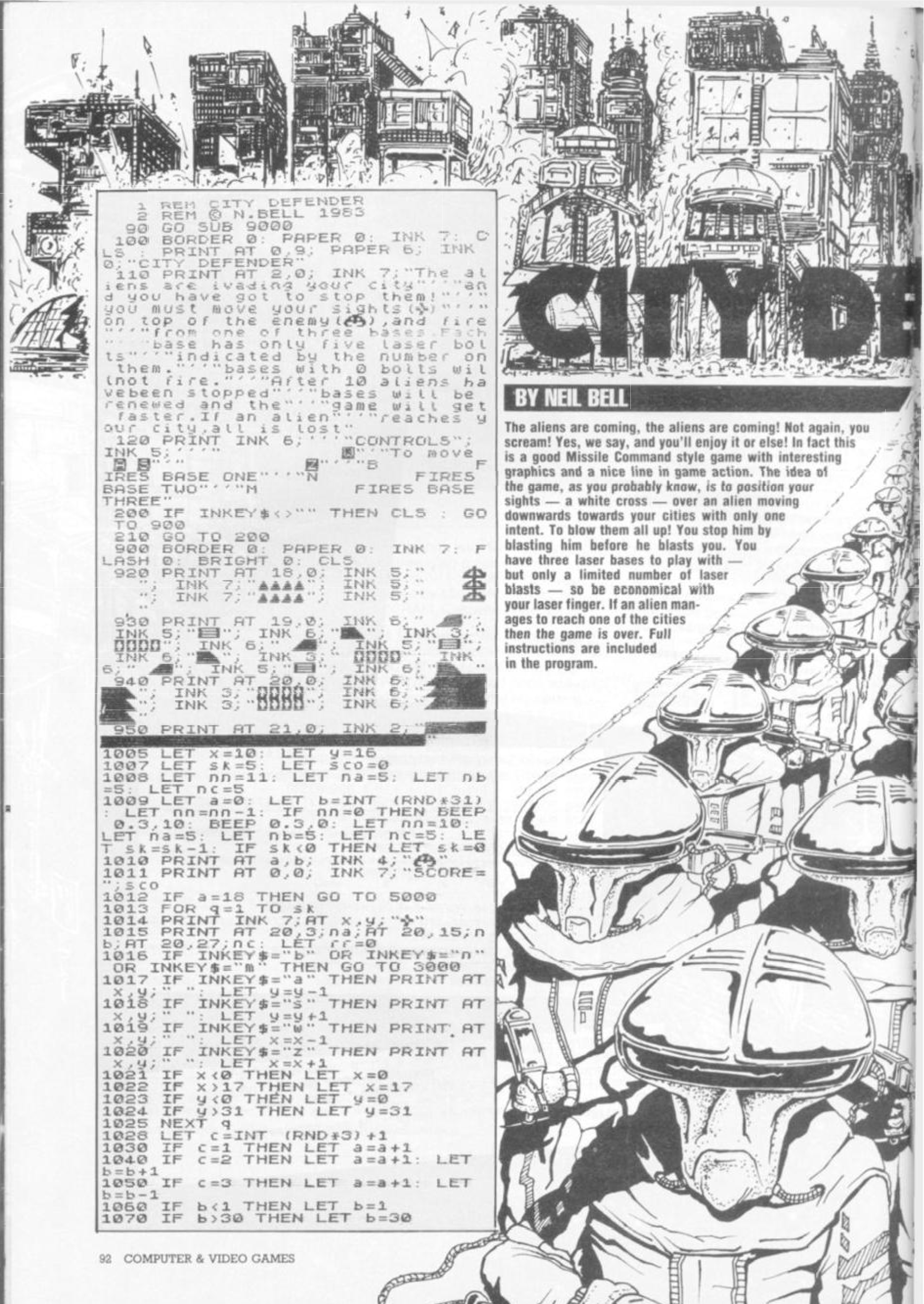
Please send me a colour brochure with full specifications of ZX Microdrive/Interface 1, *and* add my name to the Microdrive Mailing List! *(tick here)* ☐ (Remember to include your name and address on the form above

Variables
C: block colour
CS: colours.
F,G: for next control.
H: block control.
G$: get character string.
V: volume address.
D$,E$: data strings.
D: data.

```
1730 IFRND(TI)>.5ANDB<16THENB=B+1
1740 IFRND(TI)>.5ANDB>1THENB=B-1
1750 IFPEEK(7702+X)=37THEN1770
1760 GOTO1280
1770 POKEV+1,42:P=P+20:PRINT"[illegible]"
1780 FORF=0TO10:FORG=0TO20:POKEV-3,240-G-F*8:NEXT:PRINT"[illegible]":
NEXT:POKEV+1,8
1790 GOTO1280
1900 Z=P/50+1:IFINT(P/DI)<>P/DITHEN1280
1910 FORF=0TO4:POKE8140+F+X,40:POKE38860+F+X,F+1:NEXT
1920 GOTO1280
2100 Z=(P/5-INT(P/5))*5+1:POKEV-3,130+Z*4+P/3:POKEV+1,P/60+105
2110 B=B+DI:IFRND(1)>EV/20+.5THENDI=-DI
2130 IFB<2ANDDI=-1THENDI=1
2140 IFB>9ANDDI=1THENDI=-1
2150 B$=LEFT$("[illegible]",B)+"$$$[illegible]$$"
2160 GOTO1280
3000 A(0)=1:A(1)=22:A(2)=-1:A(3)=-22:GOSUB100
3010 A$=")I DO NOT BELIEVE IT)":GOSUB3500
3020 A$="TH[illegible] ULTIMATE CHALLENGE":GOSUB3500
```

```
3030 A$=") HAS BEEN OVERCOME )":GOSUB3500
3040 A$=") YOU ARE NOW FAMOUS )":GOSUB3500
3050 A$=" ! ! ! ! ! ! ! ! ! ! ! ":GOSUB3500
3060 POKEV+1,8:FORF=0TO21:POKE7680+F,41:POKE7723+F*22,41
3070 POKE8185-F,41:POKE8164-F*22,4[illegible]:NEXT
3080 X=0:F=7703
3090 POKEF,41:IFF=7932THEN3200
3100 POKEV-2,X*20+150:F=F+A(X):IFPEEK(F)<>41THEN3090
3120 F=F-A(X):X=X+1:IFX=4THENX=0
3130 GOTO3090
3200 POKEV-9,240:POKEV-2,0:PRINT"[illegible]":GOTO6050
3500 PRINT"[illegible]":FORF=1TOLEN(A$):POKEV-2,ASC(MID$(A$,F,1))+140
3520 FORG=0TO5:POKEV,G*[illegible]
3530 PRINTLEFT$("[illegible]",G*3+2);LEFT$(A$,F)
3540 NEXTG,F:RETURN
6000 IFVL>7THEN6030
```

```
6010 GOSUB100:PRINTB$,"[illegible]) P H A S E"L"[illegible] )",B$:FORF=0TO110
6020 POKEV-2,240-F:NEXT:PRINT"[illegible]":POKEV-2,0:RETURN
6030 POKEV-9,240:POKEV+1,26:PRINT"[illegible]H DEAR!!!!"
6040 PRINT"[illegible]YOU RAN OUT OF LIVES;[illegible]AND YOU HAD 8!!!"
6050 POKE198,0:INPUT"[illegible]ANOTHER EFFORT";A$:A$=LEFT$(A$,1)
6060 IFA$="Y"THENRUN
6070 NEW
```

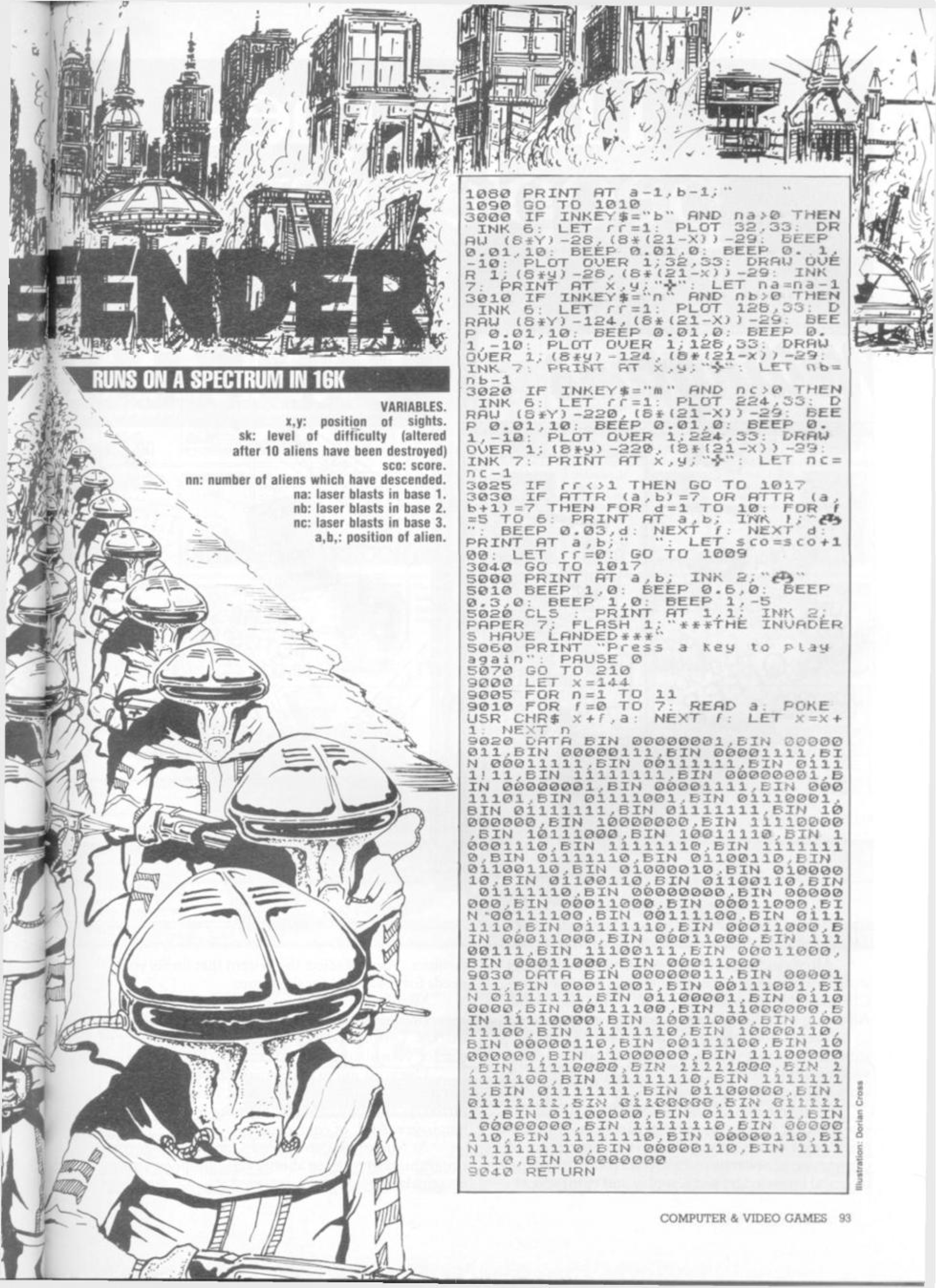


CITYD

BY NEIL BELL

The aliens are coming, the aliens are coming! Not again, you scream! Yes, we say, and you'll enjoy it or else! In fact this is a good Missile Command style game with interesting graphics and a nice line in game action. The idea of the game, as you probably know, is to position your sights — a white cross — over an alien moving downwards towards your cities with only one intent. To blow them all up! You stop him by blasting him before he blasts you. You have three laser bases to play with — but only a limited number of laser blasts — so be economical with your laser finger. If an alien manages to reach one of the cities then the game is over. Full instructions are included in the program.

```
   1 REM CITY DEFENDER
   2 REM © N.BELL 1983
  90 GO SUB 9000
 100 BORDER 0: PAPER 0: INK 7: C
LS : PRINT AT 0,9; PAPER 6; INK
0;"CITY DEFENDER"
 110 PRINT AT 2,0; INK 7;"The al
iens are ivading your city"''"an
d you have got to stop them!"''"
you must move your sights(✛)"''"
on top of the enemy(◓),and fire
"''"from one of three bases.Each
"'' base has only five laser bol
ts"''"indicated by the number on
 them."''"bases with 0 bolts wil
lnot fire."''"After 10 aliens ha
vebeen stopped"''"bases will be
renewed and the"''"game will get
 faster.If an alien"''"reaches y
our city,all is lost"
 120 PRINT INK 6;'''"CONTROLS";
INK 5;''''"            ▣"''"To move
 ▣ ▣"''"          ▣"'''"B          F
IRES BASE ONE"'''"N          FIRES
BASE TWO"''"M          FIRES BASE
THREE"
 200 IF INKEY$<>"" THEN CLS : GO
 TO 900
 210 GO TO 200
 900 BORDER 0: PAPER 0: INK 7: F
LASH 0: BRIGHT 0: CLS
 920 PRINT AT 18,0; INK 5;"     ⍭
  "; INK 7;"▲▲▲▲"; INK 5;"
  "; INK 7;"▲▲▲▲"; INK 5;"
  "
 930 PRINT AT 19,0; INK 6;" ◢";
 INK 5;"▤"; INK 6;"◣"; INK 3;"
 ▦▦▦▦"; INK 6;" ◢"; INK 5;"▤";
 INK 6;"◣"; INK 3;" ▦▦▦▦"; INK
6;" ◢"; INK 5;"▤"; INK 6;"◣"
 940 PRINT AT 20,0; INK 6;"◢
◣"; INK 3;"▦▦▦▦"; INK 6;"◢
◣"; INK 3;"▦▦▦▦"; INK 6;"◢
◣"
 950 PRINT AT 21,0; INK 2;"█████
████████████████████████████"
1005 LET x=10: LET y=16
1007 LET sk=5: LET sco=0
1008 LET nn=11: LET na=5: LET nb
=5: LET nc=5
1009 LET a=0: LET b=INT (RND*31)
 : LET nn=nn-1: IF nn=0 THEN BEEP
 0.3,10: BEEP 0.3,0: LET nn=10:
LET na=5: LET nb=5: LET nc=5: LE
T sk=sk-1: IF sk<0 THEN LET sk=0
1010 PRINT AT a,b; INK 4;"◓"
1011 PRINT AT 0,0; INK 7;"SCORE=
";sco
1012 IF a=18 THEN GO TO 5000
1013 FOR q=1 TO sk
1014 PRINT INK 7;AT x,y;"✛"
1015 PRINT AT 20,3;na;AT 20,15;n
b;AT 20,27;nc: LET rr=0
1016 IF INKEY$="b" OR INKEY$="n"
 OR INKEY$="m" THEN GO TO 3000
1017 IF INKEY$="a" THEN PRINT AT
 x,y;" ": LET y=y-1
1018 IF INKEY$="s" THEN PRINT AT
 x,y;" ": LET y=y+1
1019 IF INKEY$="w" THEN PRINT AT
 x,y;" ": LET x=x-1
1020 IF INKEY$="z" THEN PRINT AT
 x,y;" ": LET x=x+1
1021 IF x<0 THEN LET x=0
1022 IF x>17 THEN LET x=17
1023 IF y<0 THEN LET y=0
1024 IF y>31 THEN LET y=31
1025 NEXT q
1028 LET c=INT (RND*3)+1
1030 IF c=1 THEN LET a=a+1
1040 IF c=2 THEN LET a=a+1: LET
b=b+1
1050 IF c=3 THEN LET a=a+1: LET
b=b-1
1060 IF b<1 THEN LET b=1
1070 IF b>30 THEN LET b=30
```



ENDER

RUNS ON A SPECTRUM IN 16K

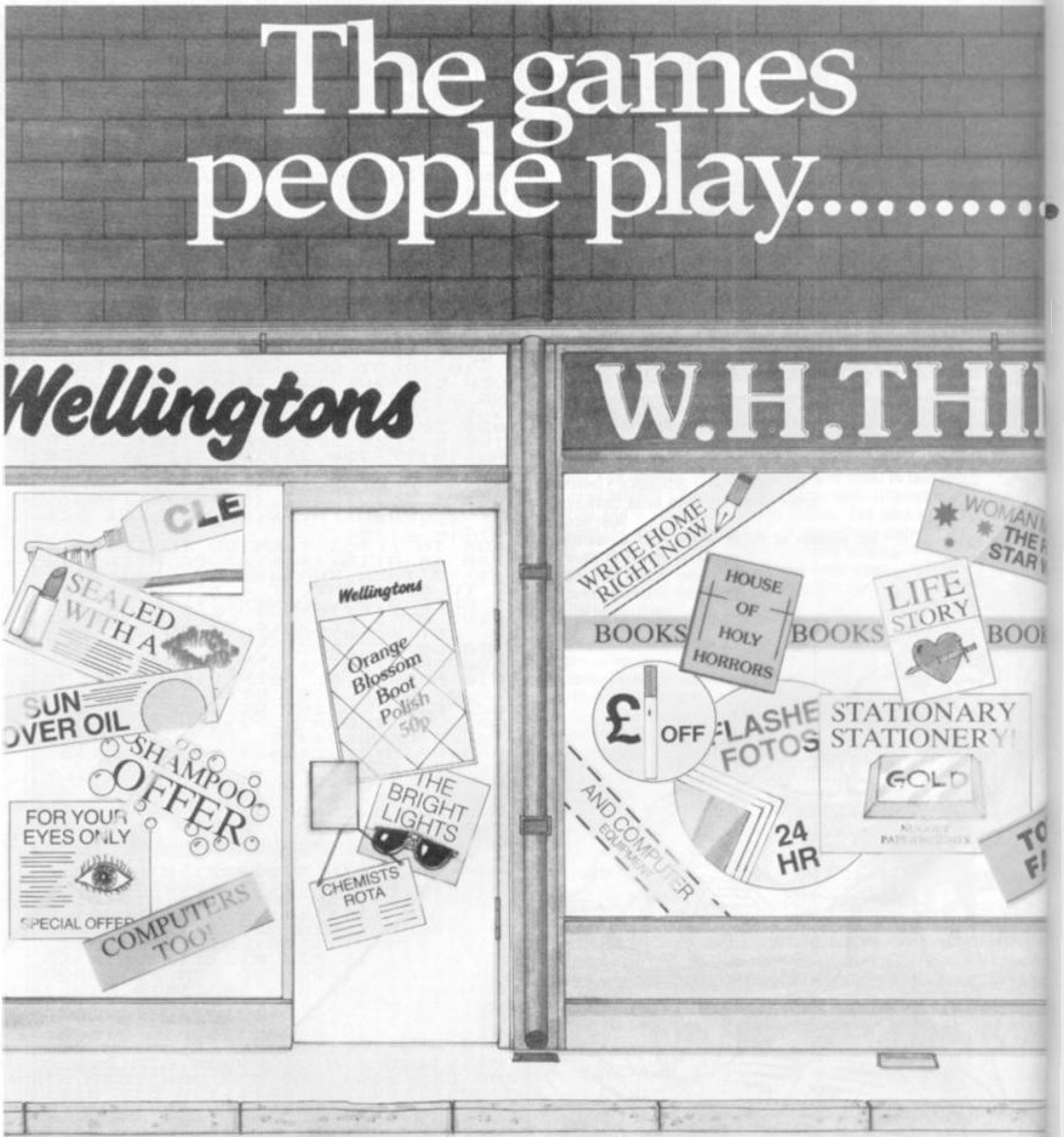
VARIABLES.

x,y: position of sights.
sk: level of difficulty (altered after 10 aliens have been destroyed)
sco: score.
nn: number of aliens which have descended.
na: laser blasts in base 1.
nb: laser blasts in base 2.
nc: laser blasts in base 3.
a,b,: position of alien.

```
1080 PRINT AT a-1,b-1;"     "
1090 GO TO 1010
3000 IF INKEY$="b" AND na>0 THEN
 INK 6: LET rr=1: PLOT 32,33: DR
AW (8*Y)-28,(8*(21-X))-29: BEEP
0.01,10: BEEP 0.01,0: BEEP 0. 1,
-10: PLOT OVER 1;32,33: DRAW OVE
R 1;(8*y)-28,(8*(21-x))-29: INK
7: PRINT AT x,y;"✛": LET na=na-1
3010 IF INKEY$="n" AND nb>0 THEN
 INK 6: LET rr=1: PLOT 128,33: D
RAW (8*Y)-124,(8*(21-X))-29: BEE
P 0.01,10: BEEP 0.01,0: BEEP 0.
1,-10: PLOT OVER 1;128,33: DRAW
OVER 1;(8*y)-124,(8*(21-x))-29:
INK 7: PRINT AT x,y;"✛": LET nb=
nb-1
3020 IF INKEY$="m" AND nc>0 THEN
 INK 6: LET rr=1: PLOT 224,33: D
RAW (8*Y)-220,(8*(21-X))-29: BEE
P 0.01,10: BEEP 0.01,0: BEEP 0.
1,-10: PLOT OVER 1;224,33: DRAW
OVER 1;(8*y)-220,(8*(21-x))-29:
INK 7: PRINT AT x,y;"✛": LET nc=
nc-1
3025 IF rr<>1 THEN GO TO 1017
3030 IF ATTR (a,b)=7 OR ATTR (a,
b+1)=7 THEN FOR d=1 TO 10: FOR f
=5 TO 6: PRINT AT a,b; INK !;"👾
": BEEP 0.03,d: NEXT f: NEXT d:
PRINT AT a,b;"  ": LET sco=sco+1
00: LET rr=0: GO TO 1009
3040 GO TO 1017
5000 PRINT AT a,b; INK 2;"👾"
5010 BEEP 1,0: BEEP 0.6,0: BEEP
0.3,0: BEEP 1,0: BEEP 1,-5
5020 CLS : PRINT AT 1,1; INK 2;
PAPER 7; FLASH 1;"***THE INVADER
S HAVE LANDED***"
5060 PRINT "Press a key to play
again": PAUSE 0
5070 GO TO 210
9000 LET x=144
9005 FOR n=1 TO 11
9010 FOR f=0 TO 7: READ a: POKE
USR CHR$ x+f,a: NEXT f: LET x=x+
1: NEXT n
9020 DATA BIN 00000001,BIN 00000
011,BIN 00000111,BIN 00001111,BI
N 00011111,BIN 00111111,BIN 0111
1!11,BIN 11111111,BIN 00000001,B
IN 00000001,BIN 00001111,BIN 000
11101,BIN 01111001,BIN 01110001,
BIN 01111111,BIN 01111111,BIN 10
000000,BIN 10000000,BIN 11110000
,BIN 10111000,BIN 10011110,BIN 1
0001110,BIN 11111110,BIN 1111111
0,BIN 01111110,BIN 01100110,BIN
01100110,BIN 01000010,BIN 010000
10,BIN 01100110,BIN 01100110,BIN
 01111110,BIN 00000000,BIN 00000
000,BIN 00011000,BIN 00011000,BI
N 00111100,BIN 00111100,BIN 0111
1110,BIN 01111110,BIN 00011000,B
IN 00011000,BIN 00011000,BIN 111
00111,BIN 11100111,BIN 00011000,
BIN 00011000,BIN 00011000
9030 DATA BIN 00000011,BIN 00001
111,BIN 00011001,BIN 00111001,BI
N 01111111,BIN 01100001,BIN 0110
0000,BIN 00111100,BIN 11000000,B
IN 11110000,BIN 10011000,BIN 100
11100,BIN 11111110,BIN 10000110,
BIN 00000110,BIN 00111100,BIN 10
000000,BIN 11000000,BIN 11100000
,BIN 11110000,BIN 11111000,BIN 1
1111100,BIN 11111110,BIN 1111111
1,BIN 01111111,BIN 01100000,BIN
01111111,BIN 01100000,BIN 011111
11,BIN 01100000,BIN 01111111,BIN
 00000000,BIN 11111110,BIN 00000
110,BIN 11111110,BIN 00000110,BI
N 11111110,BIN 00000110,BIN 1111
1110,BIN 00000000
9040 RETURN
```

Illustration: Dorian Cross

The games people play.........



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BY G. DUNNET

RUNS ON AN ATOM IN 2K

Crawling from the dark recesses of the gamesters mind comes The Bug. Horrible isn't it!

No, don't call in the local pest officer — he wouldn't be able to cope with this particular creature. Only you can stop it sneaking away under the skirting board.

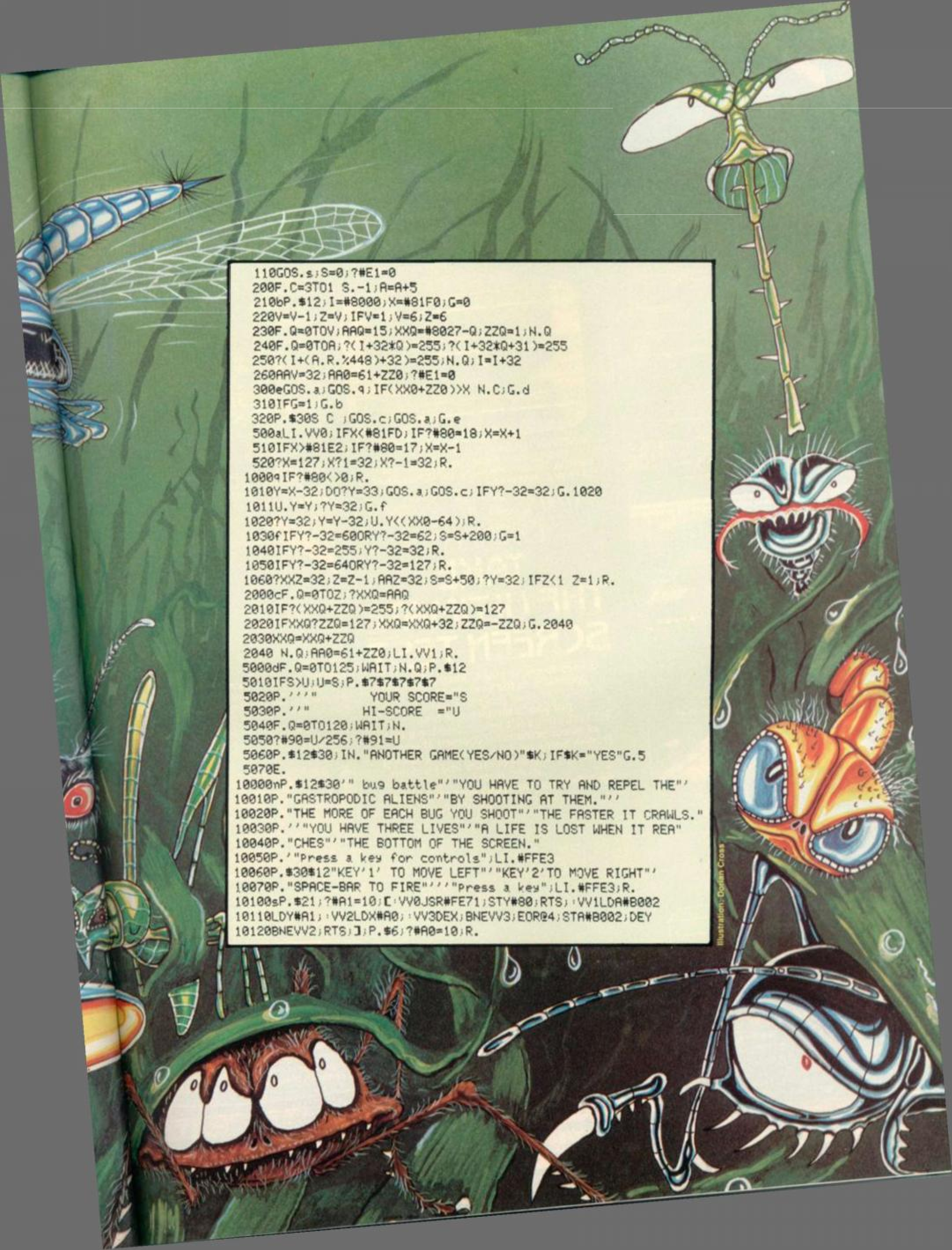
The segmented alien crawls across a screen filled with obstacles. Using your laser base you must attempt to destroy the invading insect before it reaches you. Points are scored by whittling away the segments of the bug before finally performing the coup de grace on the head. The bug moves faster each time you destroy a segment. You score 50 points for each segment and 250 when the head is destroyed. Your score is displayed at the top of the screen, along with how many lives you have left.

If you find the sound gets irritating it can be removed by omitting Link VV1 in line 2040.

Control keys are: '1' to move left, '2' to move right, space bar to fire.

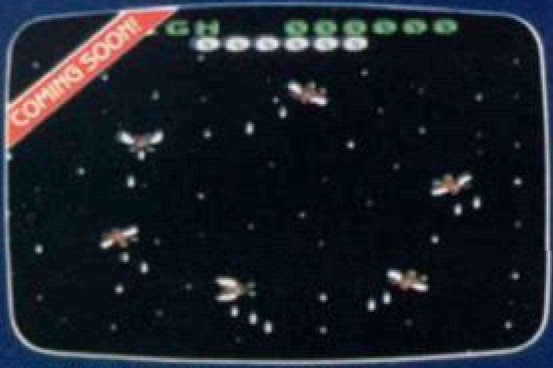
BUG BATTLE

```
 1 REM BUG BATTLE
 3  DIM AA6,XX6,ZZ6,VV4,K4,P-1;V=7;U=0
 5S=#2800;!S=#292A2B2C;S!4=#2E303233;S!8=#3435494C
10S!12=#4E505269;S!16=#6A6B6E70;S!20=#72747589;S!24=#8C8E9092
15S!28=#95A9AAAB;S!32=#ACAEAFB0;S!36=#B2B3B4B5;P.$12
20F.Q=0TO39;?(#8020+(S?Q))=143;N.Q;?#808C=155
30P.$30''''''''''"            B A T T L E"'''''
40P."  COPY-RIGHT G.DUNNETT 3/7/82"'
50F.Q=0TO100;WAIT;N.Q
60IFU=((?#90*256)+?#91);G.80
70GOS.n
80DOP.$12$30;IN."DIFFICULTY 0-10"A;A=A*2+15;U.A<37
```

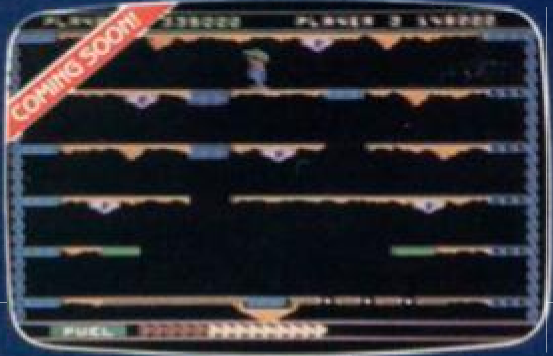


```
  110GOS.s;S=0;?#E1=0
  200F.C=3TO1 S.-1;A=A+5
  210bP.$12;I=#8000;X=#81F0;G=0
  220V=V-1;Z=V;IFV=1;V=6;Z=6
  230F.Q=0TOV;AAQ=15;XXQ=#8027-Q;ZZQ=1;N.Q
  240F.Q=0TOA;?(I+32*Q)=255;?(I+32*Q+31)=255
  250?(I+(A.R.%448)+32)=255;N.Q;I=I+32
  260AAV=32;AA0=61+ZZ0;?#E1=0
  300eGOS.a;GOS.q;IF(XX0+ZZ0)>X N.C;G.d
  310IFG=1;G.b
  320P.$30S C ;GOS.c;GOS.a;G.e
  500aLI.VV0;IFX<#81FD;IF?#80=18;X=X+1
  510IFX>#81E2;IF?#80=17;X=X-1
  520?X=127;X?1=32;X?-1=32;R.
 1000qIF?#80<>0;R.
 1010Y=X-32;DO?Y=33;GOS.a;GOS.c;IFY?-32=32;G.1020
 1011U.Y=Y;?Y=32;G.f
 1020?Y=32;Y=Y-32;U.Y<(XX0-64);R.
 1030fIFY?-32=60ORY?-32=62;S=S+200;G=1
 1040IFY?-32=255;Y?-32=32;R.
 1050IFY?-32=64ORY?-32=127;R.
 1060?XXZ=32;Z=Z-1;AAZ=32;S=S+50;?Y=32;IFZ<1 Z=1;R.
 2000cF.Q=0TOZ;?XXQ=AAQ
 2010IF?(XXQ+ZZQ)=255;?(XXQ+ZZQ)=127
 2020IFXXQ?ZZQ=127;XXQ=XXQ+32;ZZQ=-ZZQ;G.2040
 2030XXQ=XXQ+ZZQ
 2040 N.Q;AA0=61+ZZ0;LI.VV1;R.
 5000dF.Q=0TO125;WAIT;N.Q;P.$12
 5010IFS>U;U=S;P.$7$7$7$7$7
 5020P.'''"       YOUR SCORE="S
 5030P.''"       HI-SCORE  ="U
 5040F.Q=0TO120;WAIT;N.
 5050?#90=U/256;?#91=U
 5060P.$12$30;IN."ANOTHER GAME(YES/NO)"$K;IF$K="YES"G.5
 5070E.
10000nP.$12$30'" bug battle"'"YOU HAVE TO TRY AND REPEL THE"'
10010P."GASTROPODIC ALIENS"'"BY SHOOTING AT THEM."''
10020P."THE MORE OF EACH BUG YOU SHOOT"'"THE FASTER IT CRAWLS."
10030P.''"YOU HAVE THREE LIVES"'"A LIFE IS LOST WHEN IT REA"
10040P."CHES"'"THE BOTTOM OF THE SCREEN."
10050P.'"Press a key for controls";LI.#FFE3
10060P.$30$12"KEY'1' TO MOVE LEFT"'"KEY'2'TO MOVE RIGHT"'
10070P."SPACE-BAR TO FIRE"'''"Press a key";LI.#FFE3;R.
10100sP.$21;?#A1=10;[ :VV0JSR#FE71;STY#80;RTS; :VV1LDA#B002
10110LDY#A1; :VV2LDX#A0; :VV3DEX;BNEVV3;EOR@4;STA#B002;DEY
10120BNEVV2;RTS;];P.$6;?#A0=10;R.
```

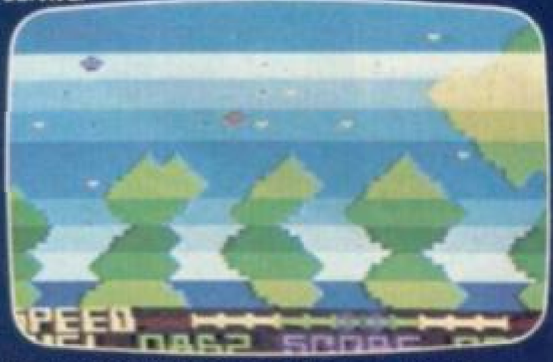
Illustration: Dorian Cross



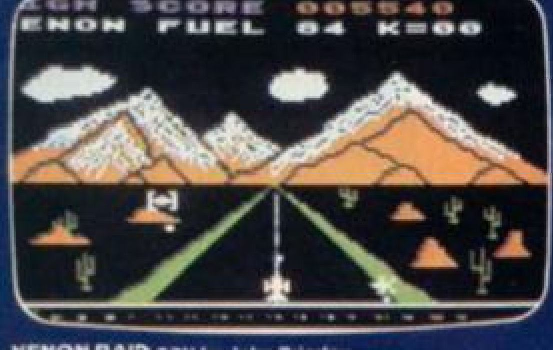
HYPERBLAST 16K by John Brierley
Simply the best arcade-action game ever written in 16K! Defend your Atari against 10 waves of the most awesome creatures ever to inhabit your TV screen!



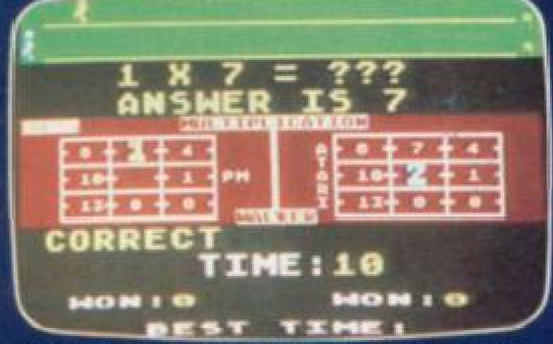
JET BOOT JACK 16K by Jon Williams
You are our intrepid hero, jetting along infested caverns, climbing moving elevators and more...much more! Ten screens to conquer, you'll need the will to survive.



VENUS VOYAGER 2 16K by Christopher Daniel
Multiple screen lander simulation – choose your sites, avoid all the hazards and rescue your stranded comrades.



XENON RAID 32K by John Brierley
Super speed superb graphics! John's first Atari classic! Use your scout ship to attack, dock with the drone and re-energise! It's you vs. The Xenons.



MARATHON & MATHS FOR FUN 16K by Geoff Brown
Brilliantly conceived educational games for children/adults of all ages – see how quickly YOU can solve the problems and win the race!

JUST OUT! JUST OUT! JUST OUT!
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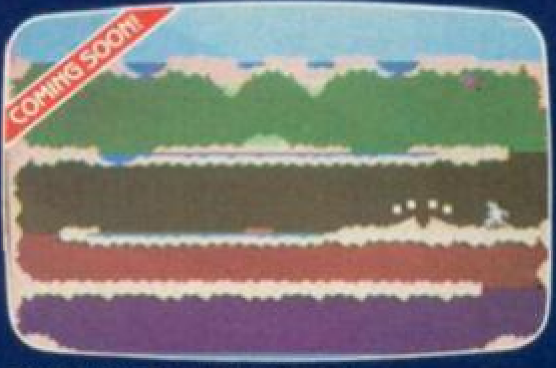
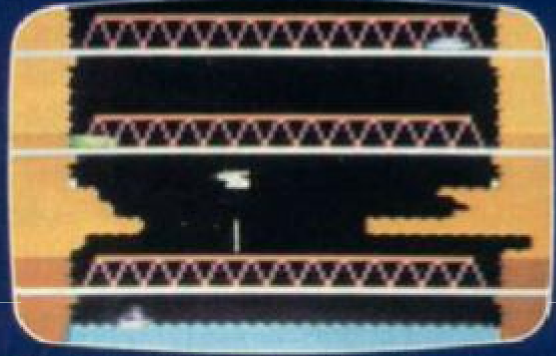


CAVERUNNER 32K by Martin Cawley
It's a leap and a bound through dangerous waterfalls, across exploding volcanoes, braving sticks and stones after the prizes of a lifetime!



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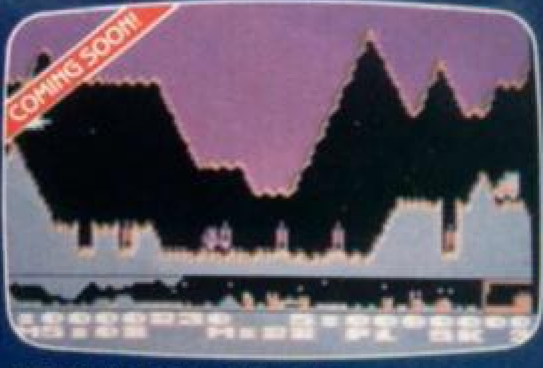

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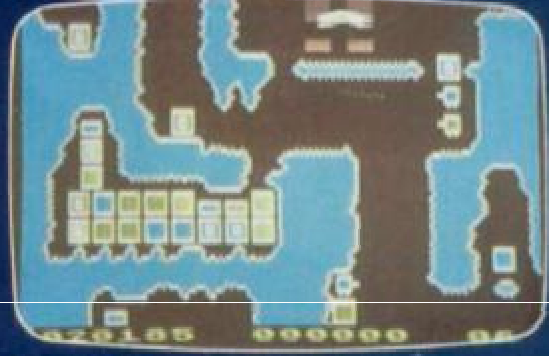

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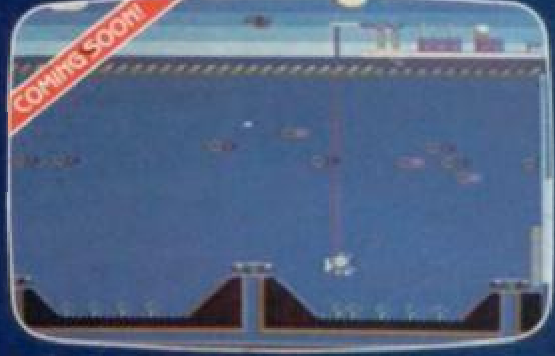

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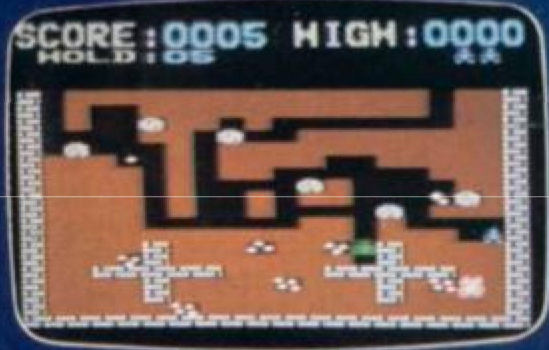

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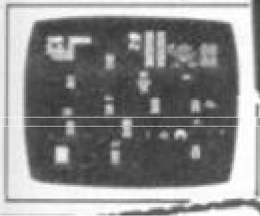

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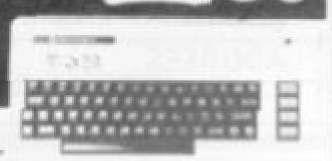

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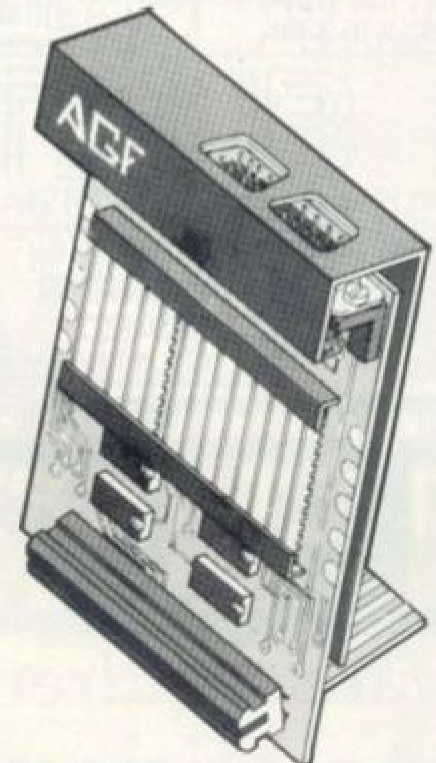

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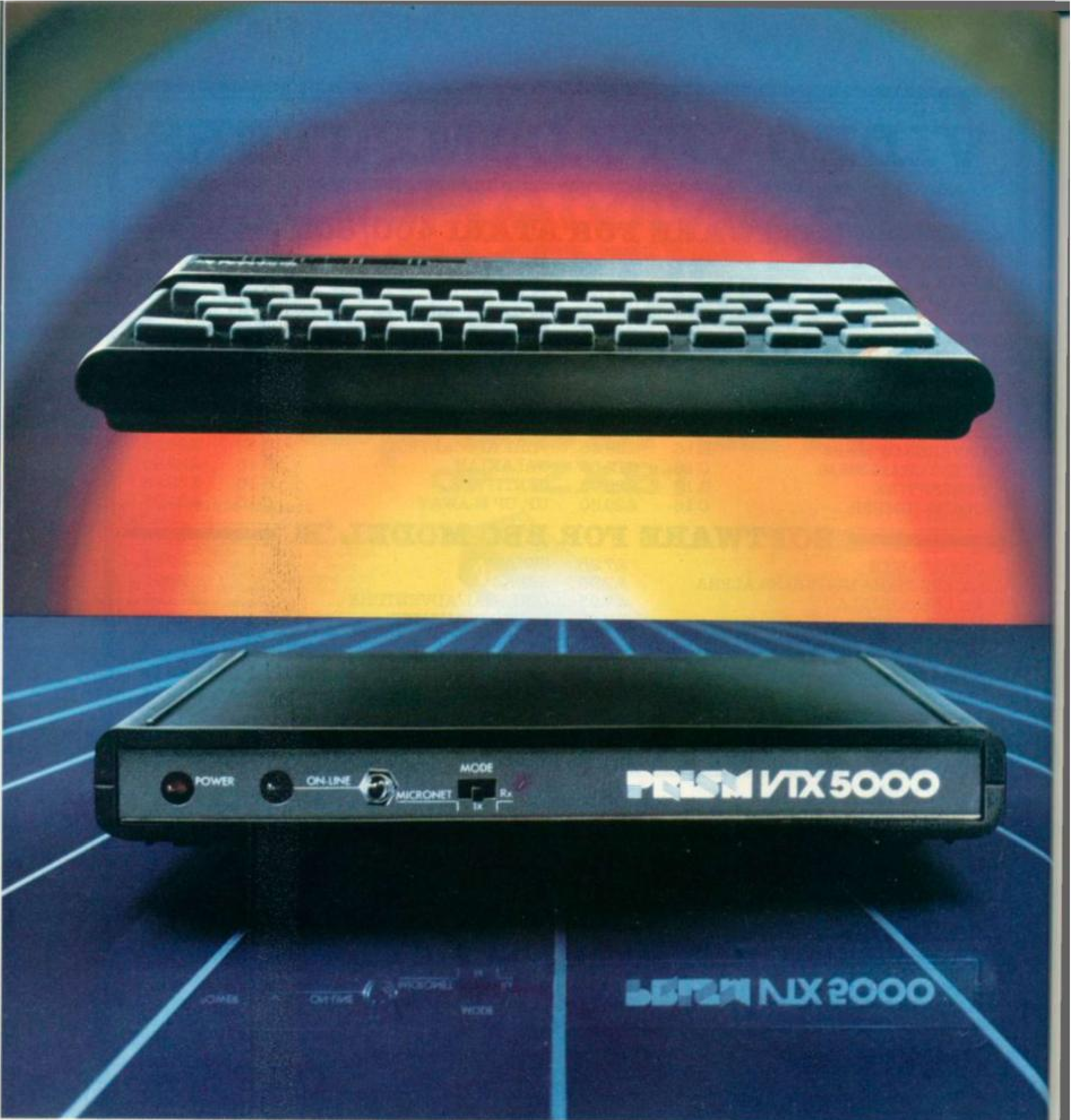
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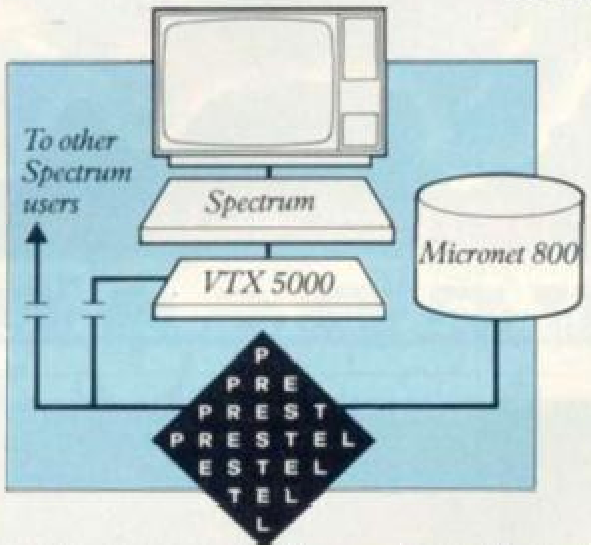

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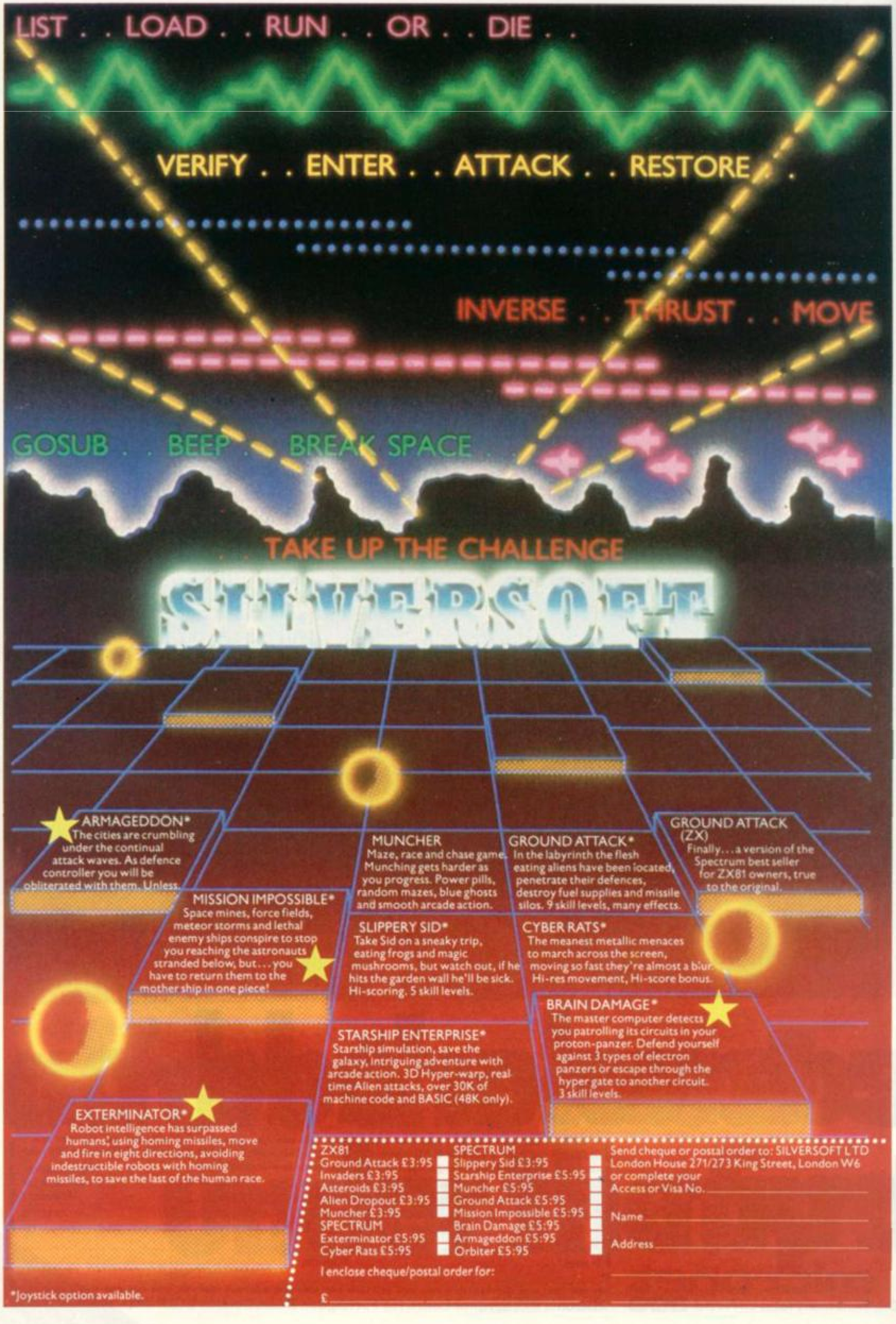
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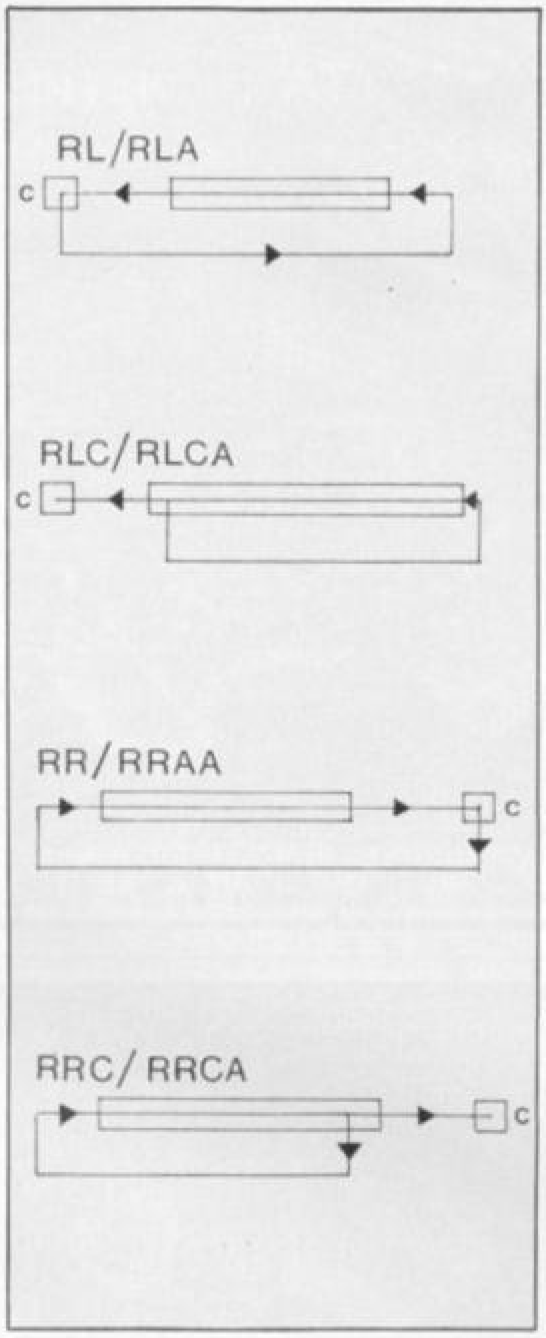
MACHINE CODE

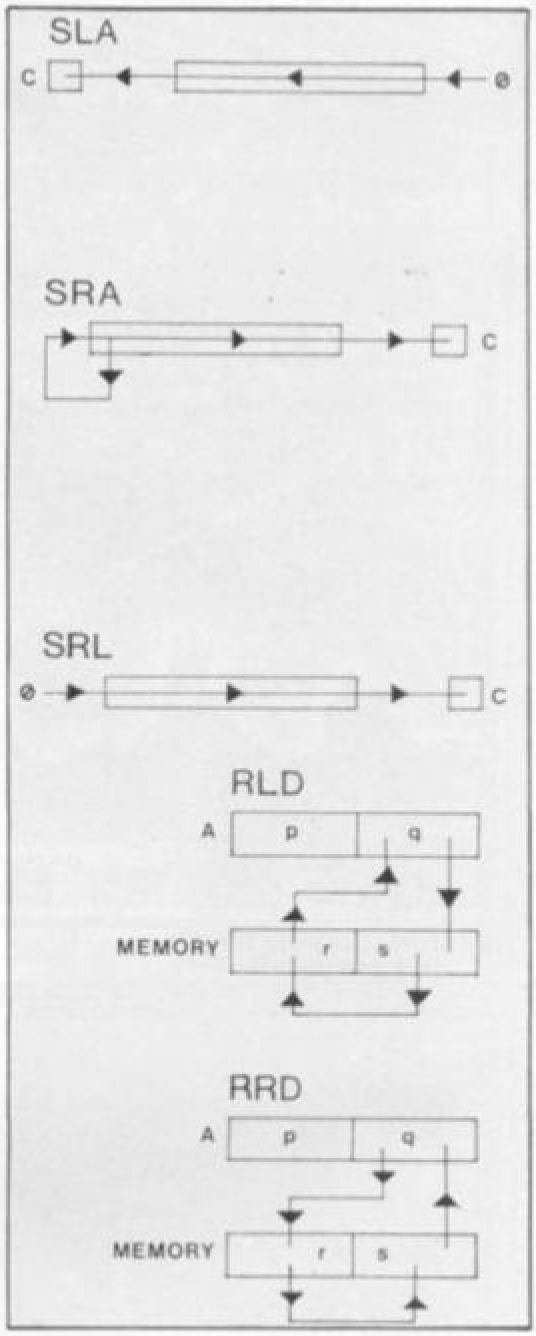
GETTING OUT OF A SPIN!

We are going to look at a group of instructions that, like the logical instructions featured in the last article, operate directly on bits.

These are *Shift* and *Rotate* instructions that move the bits in a byte one place to the left or right, and the operation of the various instructions available on the 6502, 6809 and Z80 are shown in the diagrams.

Before going on to look at what you can use these instructions for we will take a closer look at the instructions on the individual processors.





INITIALS TO REMEMBER

6502

There are four shift and rotate mnemonics,
ASL (Arithmetic Shift Left), LSR (Logical Shift Right, ROR (ROtate Right), ROL ROtate Left), which can all be used in five addressing modes, Accumulator, Absolute, Zero page, Absolute indexed by X, and Zero page indexed by X.
The assembly language source forms are:

ASL A
ASL address; 16 bit address
ASL address; 8 bit zero page address
ASL address, X; 16 bit address
ASL address, X; 8 bit zero page address
and similarly for the other three mnemonics.

In the accumulator addressing mode (which can only be used with these four mnemonics) it is the accumulator that is shifted or rotated, in the other addressing modes the memory location indicated by the operand is shifted or rotated.

Note that the pairs ASL and LSR, and ROR and ROL work identically except for the direction of movement, and that the bit that is moved out of the byte goes into the carry flag. The result of the operation, replaces the original operand, in the accumulator or memory according to the addressing mode.

As well as the carry flag being set by the bit that is moved out of the operand the sign and zero flags are set according to the result of the operation.

6809

The rotate and shift instructions on the 6809 are very similar to those of the 6502, and the ASL, LSR, ROL and ROR instructions do exactly the same as the corresponding mnemonics on the 6502.

LSL (locical Shift Left) is just a different name for ASL and both mnemonics give the same object code.

The other 6809 instructions, ASR (Arithmetic Shift Right), is similar to LSR, but leaves bit seven (the most significant bit) of the operand unchanged.

ASL, LSL, ASR, LSR, ROL and ROR can be used with direct, extended, and all indexed and indirect addressing modes. The operation is performed on the contents of the memory location indicated by the operand and the result is written back into the same memory location.

For shift and rotate operations on the accumulators A an B we have the inherent mode mnemonics ASLA, ASLB, LSLA, LSLB, ASRA, ASRB, LSRA, LSRB, ROLA, ROLB, ROR, RORB.

As well as the carry flag being set by the bit that is moved out of the operand, the sign and zero flags are set according to the results of the operation.

CHANGE OF ADDRESS . . .

Z80

The shift and rotate mnemonics can be used with the following addressing modes:

RR register; register is one of A, B, C, D, E, H, L
RR (HL)
RR (IX + d); d is an eight bit displacement
RR (IY + d); d is and eight bit displacement.
and similarly for RRC, RL, RLC, SLA, SRA, SRL.

Note that RR and RL perform a nine bit rotation (the eight bits of the operand plus the carry flag) while RRC and RLC

BY TED BALL

perform an eight bit rotation on the operand and copy the original bit 0 (RRC) or bit seven (RLC) into the carry flag.

As well as the carry flag, RR, RRC, RL, RLC, SLA, SRA and SRL set the sign, zero and parity/overflow flags according to the result of the operation. These shift and rotate instructions, as well as the logical instructions we looked at last month, treat the P/O flag as a parity flag.

The value of the P/O flag is calculated from the number of 1s or 0s in the eight bit result of the operation: if there is an odd number of 1s or 0s the P/O flag becomes 1 and if there is an even number of 1s or 0s the P/O flag becomes 0.

The number of 1s and the number of 0s in a byte must both be odd or both be even because there is a total of eight bits.

The main use for parity is in data communications, where parity can be used to check whether a character or a block of data has been transmitted correctly.

For example, there are 128 ASCII characters so we need seven bits to represent an ASCII character.

If we are transmitting eight bit bytes the extra bit can be calculated so that every byte has, say, even parity, and then if a byte with odd parity was received we would know that there had been an error in transmission.

A single parity bit only allows us to detect a one bit error, but with more parity bits and a more complicated method of encoding the signals it is possible to detect errors of two or more bits and even to correct some errors.

The instructions RL register, RLC register, RR register, RRC register, include RL A, RLC A, RR A, RRC A (note the spaces). But there separate instructions RLA, RLCA RRA, RRCA (no spaces). Although the two forms have the same effect on the accumulator and the carry flag there are two differences.

The most important difference is in the effect on the flags. RL A, etc (with space) effect the carry, sign, zero and parity/overflow flags, but RLA, etc (without space) affect only the carry flag and leave the other flags unchanged.

The other difference is in the object code for the instructions. The object code for RL A, etc. is two bytes, while the object code for RLA, etc is only one byte, taking up less space and executing faster.

Another point to notice is that although most of the shift and rotate instructions come in corresponding left and right pairs, there is no SLL instruction corresponding to the SRL instruction. SLL was designed into the Z80 but is not documented because it did not work correctly in all cases.

Some assemblers for small microcomputers will accept SLL and other undocumented instructions but it is not wise to use them. Although these undocumented instructions may appear to work there is no guarantee that they will work properly with all operands or on all Z80 microprocessors.

The two instructions RLD (Rotate Left Digit) and RRD (Rotate Right Digit) rotate by four places at once, between the least significant four bits of the accumulator and the memory location whose address is in the HL register pair.

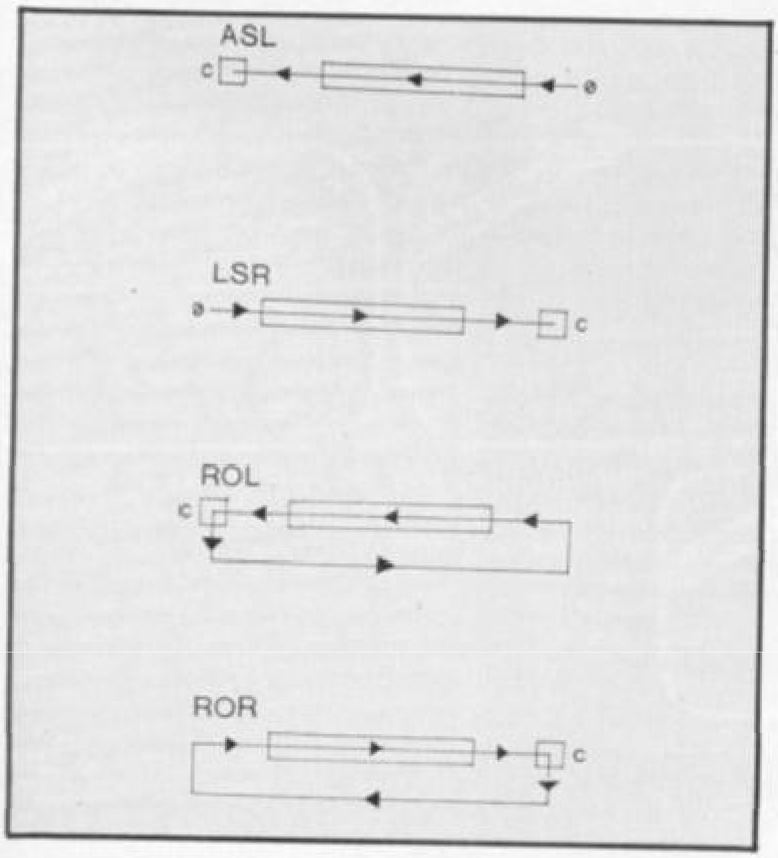
In the diagram for RLD, p, q, r and s each represent four bits, and after the RLD instruction was executed A would contain pr and the memory location would contain sq.

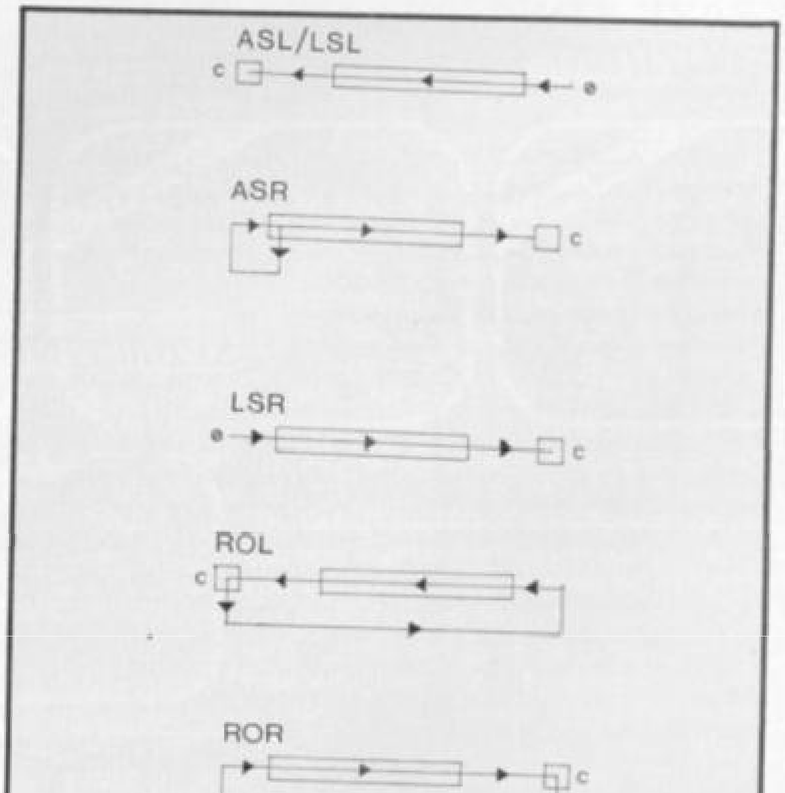
One use of the shift and rotate instructions is for multiplication and division. The simplest case is multiplication or division of small unsigned numbers by a power of two which just requires shifting left for multiplication or shifting right for division.

A single arithmetic shift left multiplies a byte by two, arithmetic shift left twice multiplies by four, etc, and similarly arithmetic shift right divides by two, arithmetic shift right twice divides by four, etc.

It is a little more complicated if you are dealing with signed binary numbers or numbers that take up more than one byte, but these cases are still fairly simple.

In general, multiplication requires a combination of shifts and additions, while division requires a combination of shifts and subtractions.





STASTEROIDS — SPECTRUM

Congratulations to Grant Wastle of Dunfirmline for being the first to earn £5 from the Bug Hunter for his tip about Stasteroids for the Spectrum which appeared in our April issue.

To convert the game for use with Kempston joysticks the following alterations need to be made Line 1030 Remove I=INKEY$ and everything after it on that line, then add

```
1035 LET I$= INKEY$:LET D=D+
(I$="4" OR I$="6" OR I$= "5" AND
D<21) -(I$="8" OR I$="0" OR I$="9"
AND D>1)
```

METEOR — TI99/4a

Meteor for the TI99/4a in July puzzled a few people in the area around line 2970. The line is confusing because of the way it was split for printing. The end of line 2970 continues, in case you haven't already spotted it, on the next line which looks as though it's line 2980 but isn't!

DRAUGHTS — ATARI

Our offering to Atari owners in June was a Draughts program, which caused some tearing of hair, especially when it came to line 109. The telephones buzzed with the sound of "I can't get line 109 to fit in".

I've dug out the original tape and it loaded perfectly into our Atari 800. I'll write to Mr Solanki to ask him the secret but in the mean time the best way round the problem is to put the first five characters from line 109 on to the end of the numbers in 108, which will work.

KRAZY KONG — SPECTRUM

J. Burton of Cleveleys, Lancs, claims his £5 with a correction to Krazy Kong in July's issue, for the Spectrum.

If you walk over a plug from right to left, he says, then you fall down the hole because the plug is removed before you move on one space. To remedy this, the following lines should be added

```
90
IF ATTR (A+1,B) = 110 THEN PRINT
AT A+1,B: INK 7;" ":LET P = P+1: LET
SC = SC - 100 :LET B = B-1
```

Then change line 92 to the same as 90 but replace B=B−1 with B=B+1.

GHOST TRAP — VIC 20

Ghost Trap, for the Vic, used Z and X to move left and right, although the instructions from the author said to use the cursor keys.

If confusion still reigns over the program then clear the machine and enter the following routine.

```
10PRINT PEEK(197): GOTO 10
```

Run this program and you'll see numbers scrolling up the screen. Now press a key for a second and the numbers will change. The number shown is the code for the key being pressed, so use this routine to find four convenient keys to use in the game, and their code numbers.

Then you can add these keys to the game by substituting the numbers in lines 102, 104, 105 and 107. These four lines are respectively up, left, right and down.

For example, Z is code 33, so to use Z to move left, change line 104 to IF X = . . . Note that the X at the start of the line does not change.

BUG HUNTER

Write to me at Bug Hunter, Computer and Video Games, Durrant House, Herbal Hill, London EC1R 5JB.

SUBSTRIKE — TI99/4a

A crisp fiver is on its way across the Channel to Belgium, to Roger Kokken for his suggestion on adding a high score feature to June's Substrike program for the TI99/4a.

The program should be altered as follows

840 AFTER "score"; score . . . add:: DISPLAY at (1, 19): "HISCORE"; HISCORE and then insert these lines . . .

```
1031 IF SCORE>HISCORE THEN 1032
ELSE 1033
1032 HISCORE=SCORE
1033 DISPLAY AT (1,19): "HISCORE";
HISCORE
```

GROW WORM — ATARI

Going back a couple of issues, there may still be problems with Grow Worm for the Atari 400/800 from May. Line 4 is a screen clear character and can be replaced with 4 PRINT CHR$(125). The bracket in line 30 is the same character and can be substituted with PRINT #6; CHR$(125).

SPLITTING THE VIC

The practice of splitting Vic-20 programs into two parts to enable them to run in 3.5k still causes problems.

The basic (sorry!) idea is that when user defined graphics or machine code is set up using data statements, the data lines are used only once to alter the memory. Once they have done their job, they may be erased, leaving the graphics safely in memory out of the way of the main program.

This is why some Vic games are split; one program is used to set up the graphics, and can then be erased. This then leaves a full 3.5k for the main program to use.

To enter such a program is simple

- Type in the first program and save it on a cassette. When saved, do not rewind the tape.
- Turn off the machine to clear the program from memory.
- Turn the machine back on and type in the second program. Save this on the tape straight after the first program.
- Turn the machine on and off again.

To play the game, load in the first program and leave the tape recorder running. The first program will do its job and will then load the second program in straight after, overwriting the first program in the process. You will usually find that the first program ends in a LOAD statement for this purpose.

TIPS FOR THE ORIC

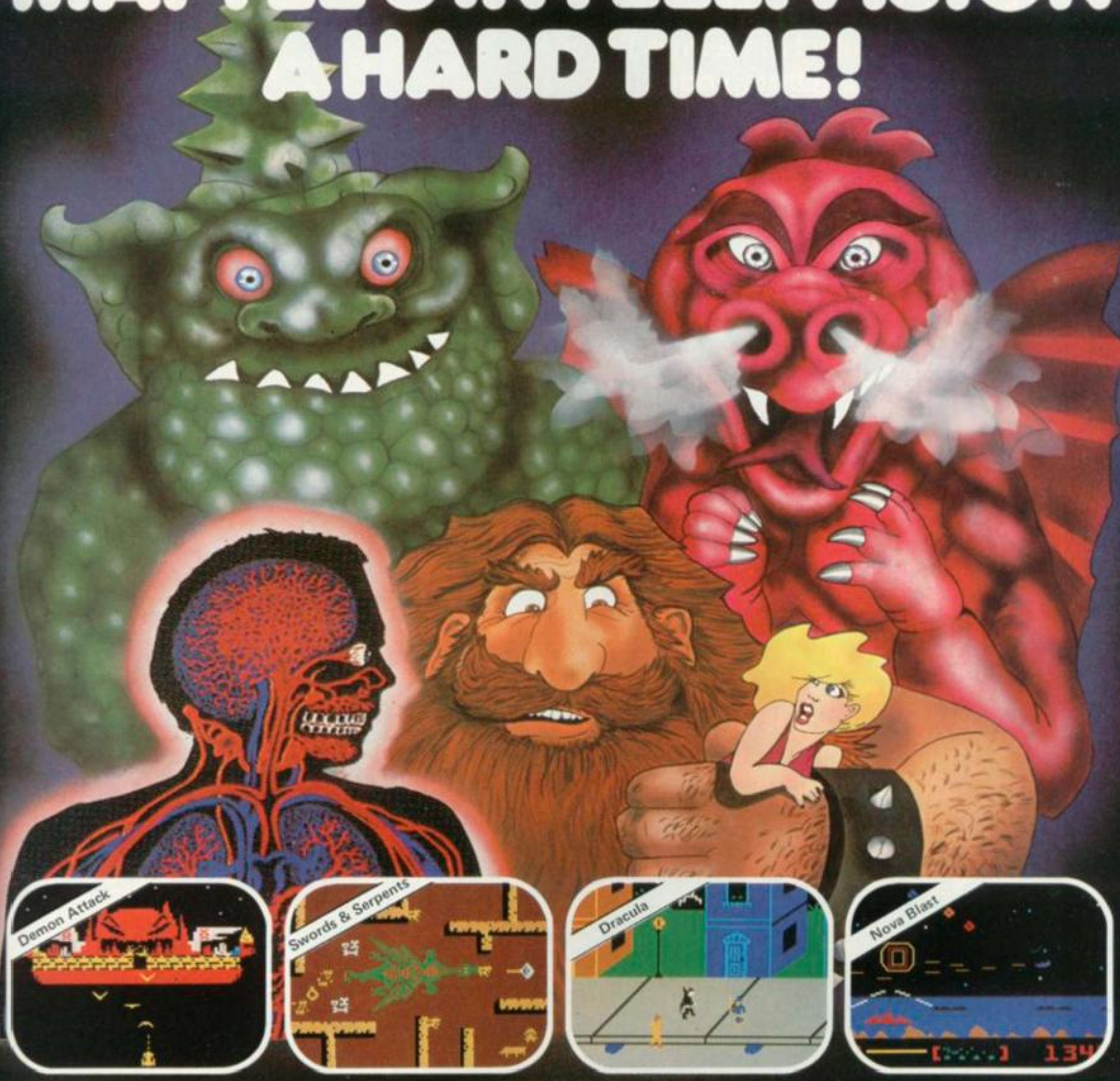
This month's tip comes from the Tangerine Users Group. To remove the CAPS from the top right hand corner of the screen, simply type POKE 48035,0 and it will disappear. This works by putting a black INK character in position 1 before the "C" of CAPS.

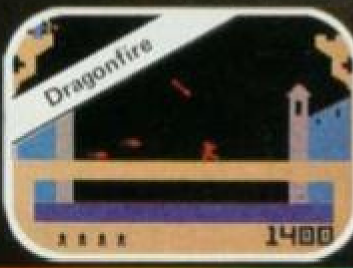
If you want to speak to me about Bug Hunter or you have a query about a listing in *C&VG*, then dial 01-278 3881 and ask for me, but please keep calls between 9.30 and 5.30 otherwise I'll never get home in time for Coronation Street (now there's an idea for a game!).

Alterations to programs are best done through the post; scribbling reams of Basic listings from the 'phone is prone to error to say the least. Remember that tips and hints published in Bug Hunter *will each earn £5* but you must be prepared to accept feedback from myself and from readers if it doesn't do exactly what it's supposed to.

BY ROBERT SCHIFREEN

IMAGIC GIVES MATTEL'S INTELLIVISION A HARD TIME!





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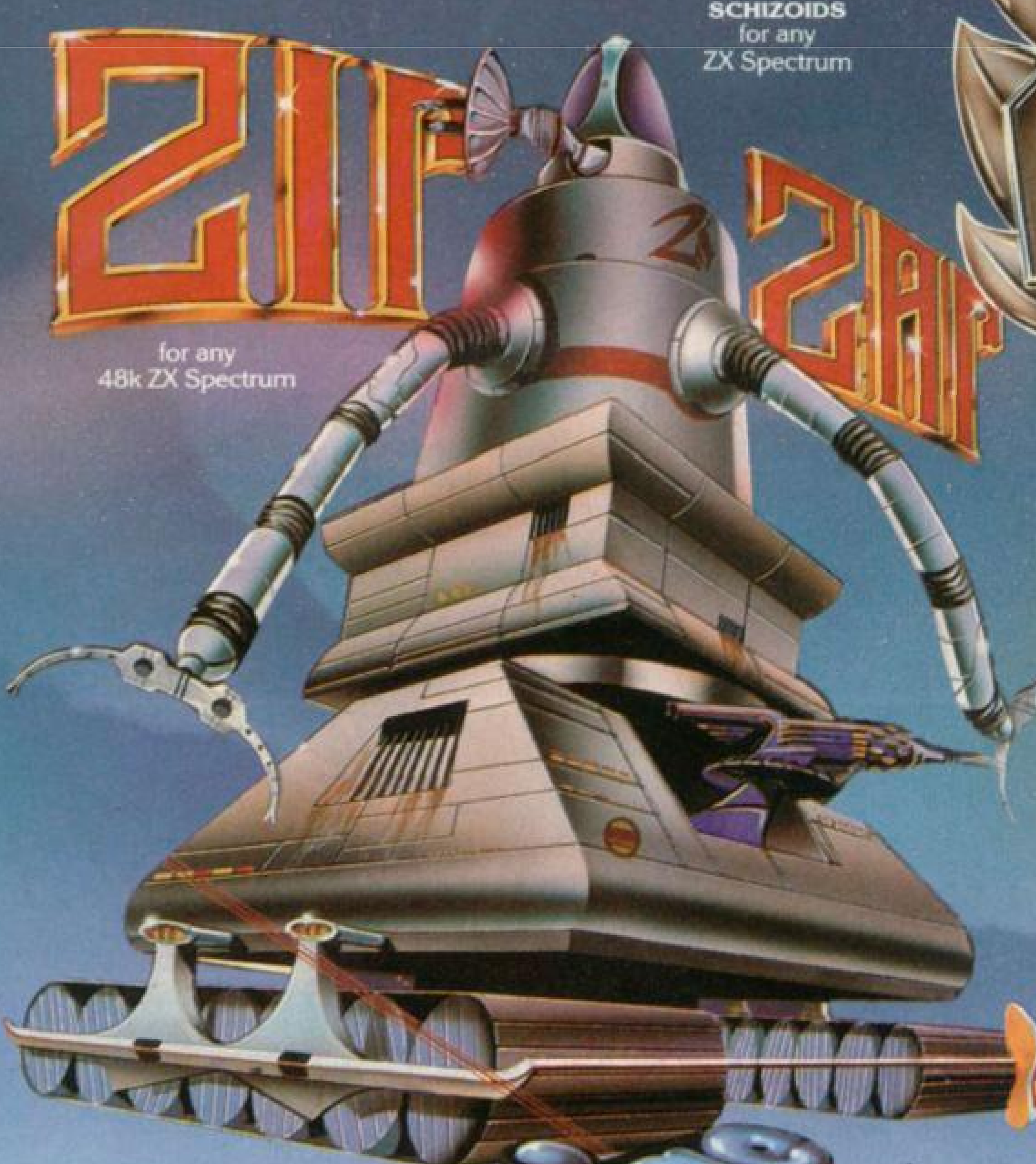
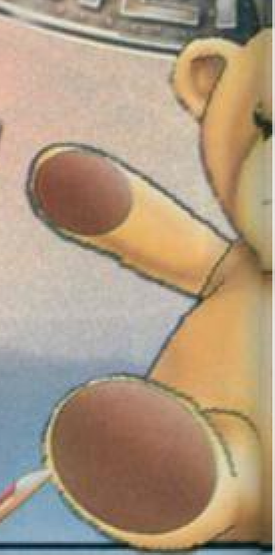


for any
48k ZX Spectrum

CATCHA SNATCHA
for any Commodore
Vic-20



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Zzoom – As you climb into your gleamin
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Flight computer, the feeling of excitemen
dread. Another mission is about to begi
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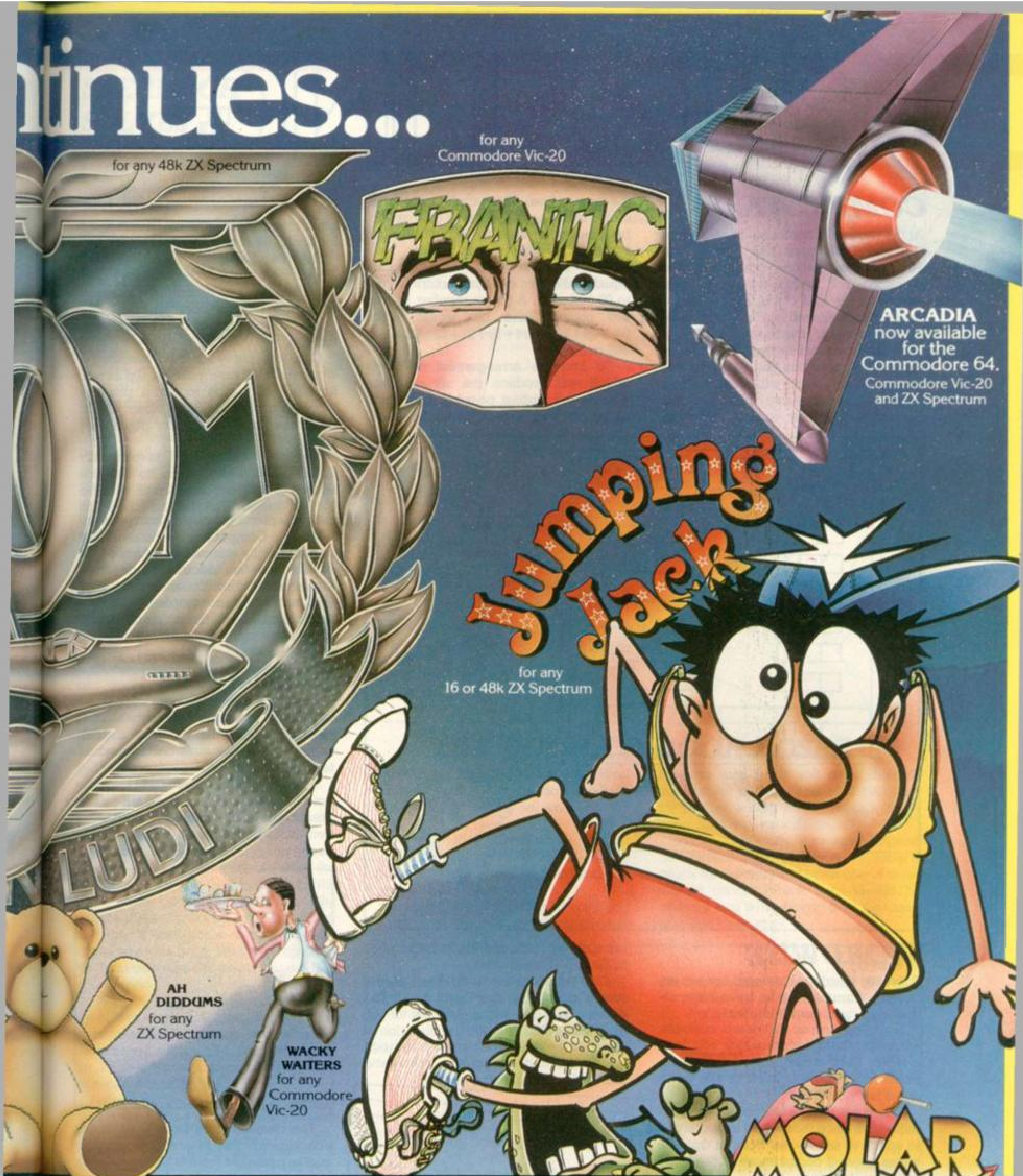
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Zip-Zap – You're the only droid left, your circuits are damaged, you can't switch off your motors, you must survive to warn the colonists, your energy is running low, you must get more fuel cells and stock up power by travelling in the teleportal. You'll encounter more aliens than you've ever seen before in this desperate attempt to survive, as you progress your droid through the various domains of ever increasingly intelligent and vicious attackers. Heart stopping tension and supersmooth animation and sound. 100% maching code. Zip-Zap requires a 48k Sinclair Spectrum.

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PUZZLING

BY TREVOR TRURAN

COMPUTATION

At the particular combination of Grange Hill and Dotheboys Hall where Ivan Potts keeps tenuous control of the blackboard it is his custom to gain respite at the end of term by setting a calculating task well beyond the mental capacities of his charges.

As they flounder through a morass of tedious computations he makes the major decision which will govern their future — just how nasty a crack he can put on each report without infringing the laws of libel. This term's problem is easily stated: The digits 1 to 9 are to be used *twice* each to form six 3-digit numbers.

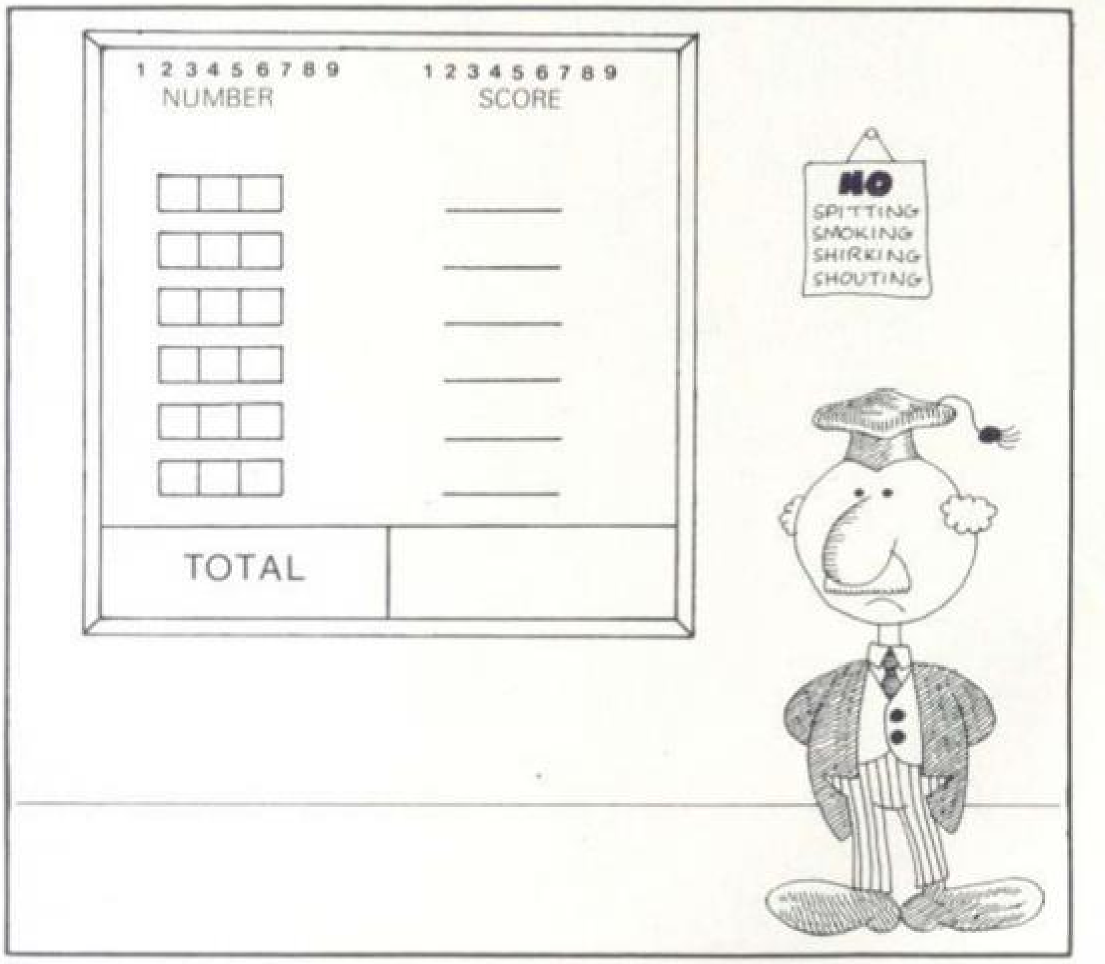
Each number then scores points equal to the *sum of all its factors* from 2 to 99 inclusive. A prime number scores 200 points. Thus 126 would score 2+3+6+7+9+14+18+21+42+63= 185 points.

To find the arrangement of digits which will produce the six numbers scoring the highest possible aggregate of points was a task, Potts believed, guaranteed to ensure classroom quiet for a couple of months!

But he had not reckoned with Anthony Stubbs who, in a spare lunch-time, knocked up a computer program to do the tedious work and then sold copies of the answer to his classmates for 10p.

Can you put your own machine to work and also save yourself 10p as well as stand a chance to win a prize by working out which six numbers should be chosen and how many points they score?

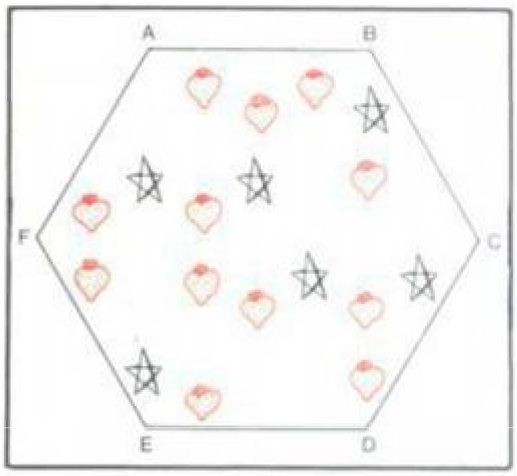
We are offering the revolutionary Kodak Disc 4000 camera to the first three readers out of the hat with the correct answer. Entries should be with us by September 16th. Mark your envelopes Computation Puzzle. The camera is fully automatic and has a built in flash and an electric motor which advances the disc film after every shot. The outfit comes complete with two Kodacolour disc films, metal snake chain wrist strap and instruction booklet.



TRIPLE CUT

Taking six children on a summer picnic is asking for trouble — even when you have made sure that the cake is decorated with twelve strawberries and six iced stars.

Young x-ray vision eyes will burn into your hand as you try to make sure all six pieces are of identical size and contain two strawberries and one iced star each.



The demand from Little Einstein that you achieve this in just *three* straight cuts is probably the final straw to break a saint's patience (though your suggestion that he make a daisy chain and hang it on the horns of that lovely cow in the next field must be viewed with concern).

It can be done — but can you work out how? (Not the daisy hanging the cake cutting!)

WORDWISE

Fourteen words, all related by an extremely common theme, have been reduced to their constituent letters.

Each line, across and down, contains, amongst others, letters which will form a word. Each letter is used once only, either in the across word or the down word but not both.

When a line contains the same letter more than once there is no ambiguity as to which to use — the word in that line either uses all occurrences of the letter or none of them.

You may have noticed that the grid contains no vowels — which could be a drawback to finding the words. However, we can tell you that the only vowels required are E's and I's. The number at the end of each line tells you first, the number of consonants, second, the number of E's and third, the number of I's.

Thus one across uses four of the letters in that line, one E and one I. The direction of one letter is given to you and, with a little thought, the direction of many of the others can be worked out.

Can you find all fourteen words and the obvious connecting theme?

	1	2	3	4	5	6	7	
1	R	M	H	P	W	C	N	411
2	F	R	G	R	H	L →	K	211
3	S	T	M	T	L	V	P	520
4	T	L	L	S	T	S	W	310
5	K	R	T	N	T	G	L	301
6	G	N	M	H	N	L	T	630
7	H	Y	N	W	F	W	T	101
	210	410	401	410	610	311	211	

SHERLOCK SOLVES A MURDER . . .

Sherlock Holmes allowed his eyes to travel slowly round the room. Patiently he waited for them to return. At last they all filed into the room and he motioned the company to sit down. They did, except for Lord Ealaudie who continued to lie on the library floor supporting a dagger of Birmingham design in his ample paunch.

"The diagram please, Watson," said Holmes.

"Here you are, Holmes. As you requested, I've placed each person where they were before the murder was committed," said Dr Watson.

"Ah yes," mused Holmes. "It is apparent that you all then moved to a different place and either through fear of mistakenly implicating either yourself or someone you hold dear, you refuse to disclose your position when the murder occurred."

"However, at least one truthful fact has been elicited from each of you — the number of doors you passed through to get to your destination. Add those by the name of each person on the chart, Watson." "Already done, Holmes," replied his trusted companion.

"Because of the extreme weather certain doors were propped open and others kept closed to keep a refreshing draught flowing around the house," Holmes went on. "You have all stated that you took the route which required you to pass through the fewest number of doors and that no one opened a closed door."

The company nodded, again with the exception of His Lordship.

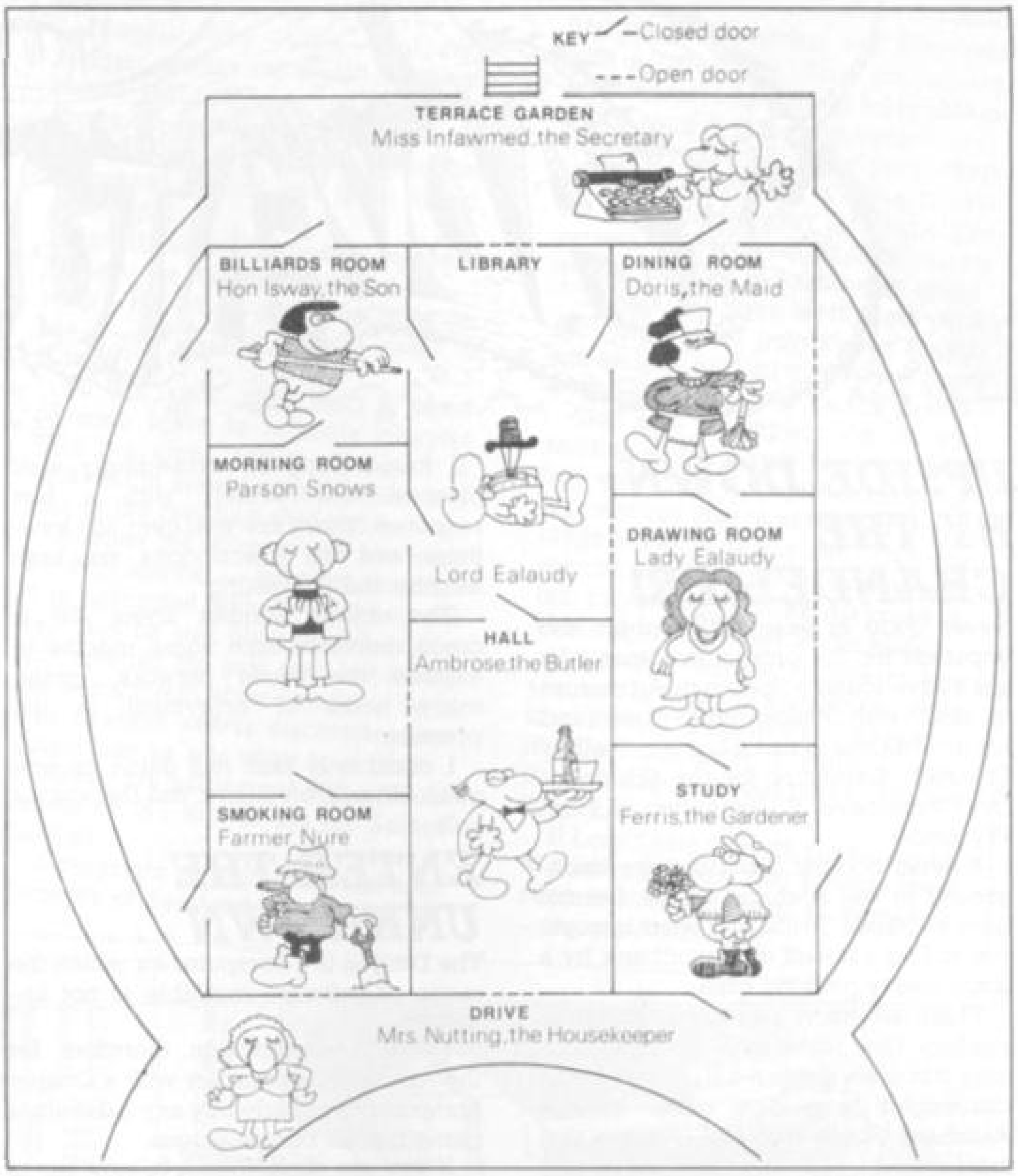
"According to Mrs Nutting, the housekeeper, who had just returned from the village and was on the drive when the crime was committed, Ferris, the gardener was not in the Smoking Room and that it was not a member of the house who was in the Study. On opening the front door she observed that the Hall was empty.

"We can, I believe, accept the veracity of the visiting Parson Snows, who states that he did not go outside when he changed rooms. The only other visitor, Farmer Nure, prefers not to be able to recall where he went."

Holmes pursed his lips for a moment then drew forth a sovereign. He tossed it to Watson.

"There you are, my good fellow. A wager that you cannot identify the person who went into the Library and inserted the iron into His Lordship!"

Watson, as ever, failed to win, but you gentle reader can work out just who done it. Can't you?



THE DOOR TO DOOR POSER

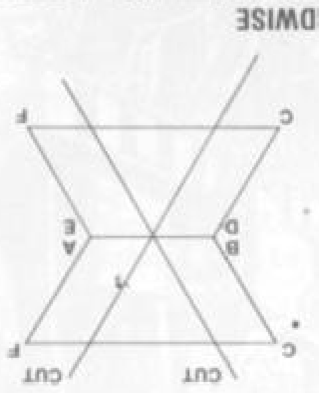
It was some months before the local children would visit the house where Lord Ealaudie had seen, and felt, the point.

And when they did venture in, finding it exactly the same as on the day of the crime, it was only to run in and out through the open doors.

Later, following a surfeit of watching a television programme which advised them to turn it off and do something interesting, it was suggested that they try to find a way to go through *every open doorway exactly once.*

Try as they might, it seemed impossible (which it is). Someone will have to pluck up the nerve to open one of those closed doors. Which door should be opened and where must they then start and end their run?

TRIPLE CUT
Make the first cut from corner F to corner C. Switch the two halves around so that edge AB and ED coincide and then make two diagonal cuts right through, starting one quarter of the way in:



OPEN UP
The door between the hall and the morning room should be opened. The run can start in the Dining Room and finish in the Study — or *vice versa*.

SHERLOCK
Only Miss Infawmed went into the Library at the time of the murder — though what drove her to it we dare not enquire!

WORDWISE
ACROSS: Prince; life; tempest; well; king; gentlemen; it.
DOWN: The; merry; night; shrew; twelfth; wives; like.
THEME: All words occurring in the titles of plays by Shakespeare.

UPSIDE DOWN BY THE CHANDELIER!

Never quite at ease with *Hobbit,* too impatient for the prompt in *Pimania,* at last I have found a Spectrum Adventure to rank with *Philospher's Quest* and *Lords of Karma* to name but two. I talk of *Dungeon Adventure* for the 48k Spectrum from Level 9 Computing of High Wycombe.

A small booklet describes the background to the scenario of the Demon Lord of Minas Tirith, and what brought you to find yourself on a mudbank by a large empty packing case.

There are many mysterious routes to explore. One route took me to a lightning storm on a steep hill, where I was challenged to a dice game by the Rakshasa. Some you win — some you lose!

At one stage I was attracted by a lone girl sitting on an island, and after some difficulty managed to reach her.

I also came across a strange cubic machine with a rather too obvious button, in a store room.

A treasure for rescuing the waif? Sudden death by pressing the button? I wondered, tried, and am not going to tell you! Expect the unexpected in *Dungeon Adventure!*

Overall, the game is logical, but some commands have totally unexpected results! Try anything outrageously irrelevant if the obvious gets you nowhere!

For the Adventurer who gets stuck, part of the package includes a stamped addressed envelope entitling the purchaser to one free clue.

A nice touch this, as is the warning not to use your clue up too soon, lest you solve the problem in the meantime and then get stuck on something more difficult!

So, readers, use your free clue up before you turn to the last resort — yours truly! My mailbag is already full to bursting point — and I need time for Adventuring too!

And if you do write to Adventure Helpline, do let me in on your first question and answer! It will be interesting to see if most Dungeon players get stuck in the same place!

I found Dungeon exceedingly well planned and written, with a fast response. There are well over 200 locations, and the descriptions are both lengthy and interesting.

The objects number about 100. It could therefore take some months to explore the whole network, giving many hours of enjoyment in the process.

I could only fault this game on one point. Where, oh where, did that cursor go?!

ENTER THE UNKNOWN . . .

The Dragon is a computer for which the range of software available is not immense.

There is a temptation, therefore, for the Adventure enthusiast with a Dragon computer to eagerly buy any Adventure game that he comes across.

If you are such, then it is only fair to warn you not to bother with *Forbidden City* from Apex Trading of Brighton.

The game is set on a planet with a Forbidden City, in which, the intro reads, there may be hidden treasure. You start in a location described as "OUTSIDE THE ENTRANCE TO THE CITY FACING THE LOCKED GATE". So let's start playing:

TAKE INVENTORY —

A key

LOOK AROUND —

I don't understand the noun

ENTER GATE —

I don't understand the verb

GO CITY —

I don't understand the noun

OPEN GATE —

I don't understand the noun

UNLOCK GATE —

I don't understand the verb

INSERT KEY —

Rather suddenly:—

Location: In a corridor

HELP —

Look and examine things

EXAMINE CORRIDOR —

I don't understand the noun

And so on — until in desperation you take one of the exit routes, described in abbreviated form as N, S, W, E etc, but not recognised as such.

Many of these lead to death by means such as deep pits and wall crushing chambers, which just happen, for no apparent reason, to be there.

With no warning or reason given, one's powers of deduction could not be used to solve problems to detect any potential trouble.

There were no problems — (except in trying to fathom out if any of the words used in the game were recognised by the game) — it was all a question of blundering through by brute force and ignorance.

An incredibly boring "game", just like the few other Apex (non-Adventure) games that I have seen. Don't confuse this Forbidden City with the talking disc-based TRS-80 Adventure of the same name, which has been around longer than Apex.

A REM statement in the listing proclaims copyright. Whoever would want to waste blank tape on anything so trivial?

BY KEITH CAMPBELL

HELPFUL HINTS

WARNING — Reading the following may cause your foot to penetrate your video screen!!

Mission Impossible: Be a photographer thrice over by successively unlocking and pressing the yellow and blue buttons. One key leads to another — if you get it right!

Ship of Doom: Power needed in rod. Insert battery. Then a point in the right direction may work wonders with the glass case!

Espionage Island: Read the graffiti carved in the wooden table.

ADVENTURE HELPLINE

The Adventurer's cry for HELP with Scott Adams games continues to dominate the postbag. Does this mean they are more difficult or more popular?

I suspect that it means they are more intriguing — too addictive to be able to put away and forget. The problems posed beg a solution, not letting the player rest until the truth is known!

There has recently been a small but containable outbreak of Mission Impossibilities.

Personally I found *Mission Impossible* a bit of a stop-start game, and perhaps the least appealing of the series. Breakthroughs came infrequently to me, and each soon led to yet another grinding halt.

Security cameras in the featureless corridors prevented me from entering doors most of the time. All very frustrating, and when I did win through and disabled the bomb, I wasn't even rewarded with a metaphorical pat on the back!

For those still struggling, look for the upside-down clue! Get it?!

Pimania time. Chris Hunt from Andover advises not to give the hungry Piman the pork pie, nor the bored Piman the rubber duck, or you will be repaid by robbery. Can the green door be opened without loss of an object, asks Chris?

Neil Duffin of Portsmouth has been through the ultimate gate of Pi — twice!! He passes on some clues for you — but is still keeping some to himself!

All you need, says Neil, is some common sense to correctly interpret both the clues and the song. It is essential to draw a map, as there is a clue in the resulting shape of it.

To enter the ultimate gate you need a 2 digit number — but more than that it is connected with Pi, Neil will not say! And he was disappointed to find that entering the gate does not reveal the whereabouts of the Sundial — he is still nowhere nearer discovering that secret than he was when he started!

Things are hotting up! Will a *C&VG* reader be the first to win the Golden Sundial . . .?

A desperate cry from David and Jean Simonds of Southend — stuck on the first level of *Madness and Minotaurs* with a Dragon 32. They are hunting mushrooms in the hope of being able to cast a spell to give them light.

If they don't get them soon, their six-year-old daughter is going to raid the local supermarket for some! Can anyone put them out of their misery and let the staff at Sainsbury's relax?

Steven Milligan gets help with *Espionage Island* from Steven Essery, and Anthony Sanford with *Ship of Doom* from Sion Gibson and Andrew Lake.

Sion sent a complete step by step solution — but I musn't spoil your fun so I won't print it — yet! David Coverley, who you may remember, was also languishing in this game, has now overcome his difficulties, and has written explaining how he managed it. Those in need — look at the hints!

Adventure Helpline is here to help you, and to help you help others. Write to Keith Campbell's Adventure Helpline, *Computer & Video Games*, Durrant House, 8 Herbal Hill, London EC1R 5JB.

If I can't help, there's a great bunch of readers out there who between them seem to have a solution to everything — except *Pimania*???!

PLAYING WITH BILL'S PET

Some time ago I had a letter from Bill Stanton, of St. Alban's who had been having great fun with the Captain 80 Book of Basic Adventures.

This book, which I reviewed in February, lists about 18 Adventures for the TRS-80, originally published in cassette form. Bill has a Pet, and was moved to translate these listings, being starved of Adventure due to the limited number of games available for his machine.

That is where the fun began! The Pet, in common with a number of other micros, doesn't have an ELSE statement, and the TRS-80 does.

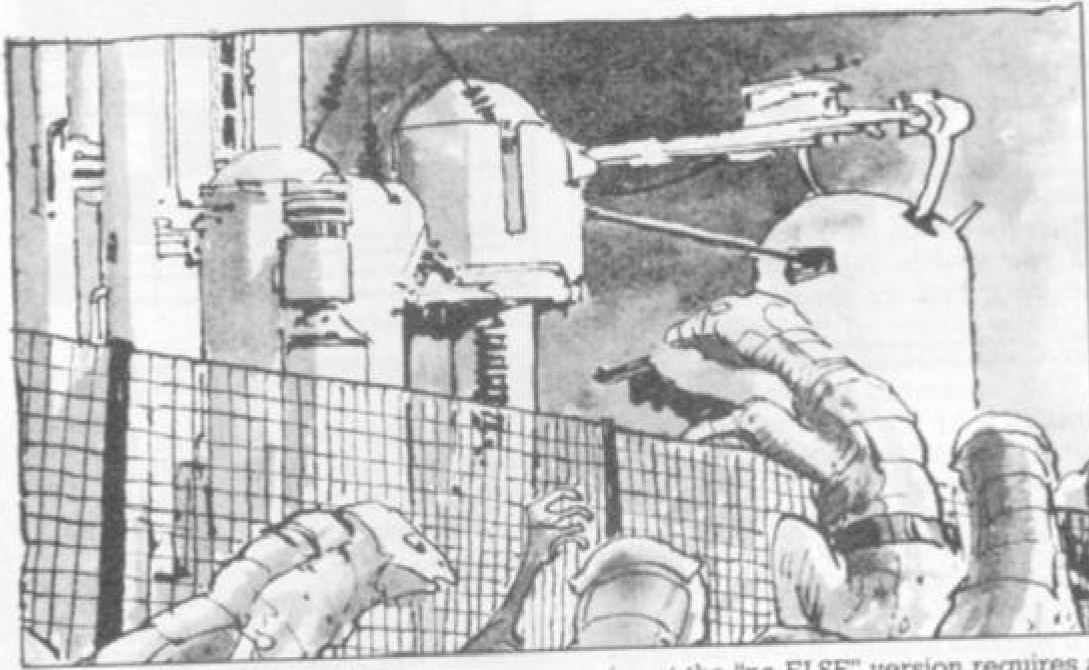
Adventure programs, for every input from the player, have to check so many conditions, each with a different result, that the programmer with an ELSE statement at his fingertips will tend to use it to the full.

Bill's problem was deducing the way in which multiple ELSE's operate, and then re-arranging the logic without using the word. He wrote to suggest that a short explanation might be useful to those not blessed with an ELSE, and he came up with the following line to use as an example:

```
50 IF LEFT$(TR$,3) = "ABC" THEN IF
0$(1) <> "1" OR 0$(2) <> "2" THEN
1000 ELSE 100 ELSE 700
```

Let us have a look at what this means. The logic in this line can more easily be seen by re-arranging it as follows:

```
IF (condition 1)
    THEN IF (condition 2)
        THEN (action 1)
        ELSE (action 2)
    ELSE (action 3)
```



We can now see that: If condition 1 is satisfied then condition 2 is checked. If condition 2 is satisfied, then action 1 takes place, if condition 2 is not satisfied, action 2 takes place. If condition 1 is not satisfied, then action 3 takes place.

Let us now see if we can rewrite line 50 without the use of ELSE. This will mean using additional lines. Assuming that there are no existing lines between 50 and 60 we get:

```
50 IF LEFT$(TR$,3) = "ABC" THEN 54
52 GOTO 700
54 IF 0$(1) <> OR 0$(2) <> "2" THEN
1000
56 GOTO 100
```

which provides the same logic. To arrive at the "no ELSE" version requires a careful analysis of the logic of the original code, so that the way it operates is completely understood.

The translation needs some care in planning the numbers of the additional lines. If there are insufficient spare numbers between adjacent lines in the original program, it may prove necessary to move the translation down to the end of the program, and access it with a GOTO.

Bill's other hobby is collecting locks. Having unlocked the secret of ELSE's, he is now happily searching for keys to the locks in the Adventure games he has painstakingly built up for himself!

And no doubt if he can't find them, the knowledge built up through his two hobbies will enable him to expertly pick them as a last resort!

GRAPHICS

By Garry Marshall

EXTEND THE POWERS OF YOUR TEXAS

The Texas Instruments TI99/4 has its own version of Basic, called TI Basic, with which it is supplied. This version of the language is quite simple, even rather primitive in some respects.

Coupled with the fact that the TI99/4 contains a 16-bit microprocessor, this makes it even more surprising that programs written in TI Basic run quite slowly.

However, there is another version of the language available for the machine. This is TI Extended Basic and it comes in cartridge form. It extends and considerably improves on some aspects of the other version by providing over 40 new or extended features.

These include supplying or enhancing features for general programming, for example, with a PRINT AT statement and a much mor general IF-THEN-ELSE statement.

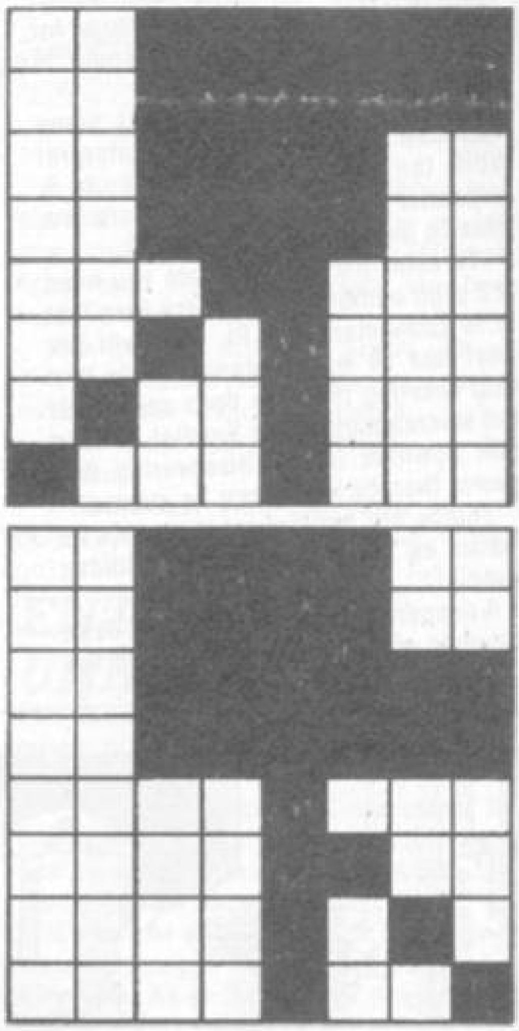
They also include many commands for Sprite graphics, and a few commands for generating speech using the speech module that can be attached to the computer.

Naturally, it is the Sprite graphics that is of interest to us, and one of its great attractions is that considerable numbers of Sprites can be moved over the screen at great speeds. When this is done one begins to feel for almost the first time that the power of the 16-bit microprocessor is being harnessed.

The commands supplied for Sprite graphics by TI Extended Basic are listed in the table below.

Given this repertoire of commands, it is at first a little baffling to know how to use them to best effect, and to visualise what kinds of effects can be achieved with their use.

If we think in terms of programming a Space Invader game, we can begin to see the uses for them.



Shapes of Sprites to come!

With CHAR we could design the shapes for the Invaders. Then SPRITE lets us position them and set them in motion.

To change their positions and the ways that they move so that their motions do not have to be entirely predictable, we can use LOCATE and MOTION.

COINC can be used to detect when the Sprite used for a missile strikes an Invader, and DELSPRITE can then be used to remove the Invader.

It is possible to use MAGNIFY to enlarge the Invaders to give an illusion of movement out of the screen to add to the movements in the plane of the screen.

The PATTERN command would come into its own in programming a Pacman game, where it could be used to create the munching effect by changing the shape of the Pacman. Clearly the commands are ideal for programming games of these kinds.

They can also be used, however, to create very realistic animation sequences with ease. Because the movement of a Sprite is maintained automatically, changing its shape while it is moving allows effects such as a man running or a bird flying or a footballer kicking a ball to be created with a minimum of effort.

Notice that for a footballer kicking a ball we should need several shapes to assign to the Sprite for the footballer to make him run and kick, and one for the football.

COINC would be used to detect when the ball was kicked, and then the Sprite for the ball would be set in motion using MOTION.

The following short program shows how a Sprite can be defined, magnified, set in motion across the screen, and have its shape changed as it moves. The two shapes that it assumes alternately are shown in the diagrams.

```
100 CALL CLEAR
110 CALL CHAR 96,
"3F3F3C3C18284888")
12 CALL CHAR (100,
"3C3C3F3F080C0A09")
130 CALL SPRITE (#1, 96, 5, 10, 136)
140 CALL MAGNIFY (2)
150 CALL MOTION (#1,0,5)
160 CALL PATTERN (#1,100)
170 FOR DELAY = 1 TO 200
180 NEXT DELAY
190 CALL PATTERN (#1,96)
200 FOR DELAY = 1 TO 200
210 NEXT DELAY
220 GOTO 160
```

COMMAND	PURPOSE OF COMMAND
CHAR:	to define a character giving the shape of a Sprite
COINC:	to detect coincidences, or collisions, between Sprites
DELSPRITE:	to delete a Sprite
DISTANCE:	to find the distance between Sprites
LOCATE:	to move a Sprite to a specified location
MAGNIFY:	to magnify a Sprite
MOTION:	to change the motion of a sprite
PATTERN:	to assign a new shape to a Sprite
POSITION:	to return the position of a Sprite
SPRITE:	to initialise the shape, position and motion of a Sprite

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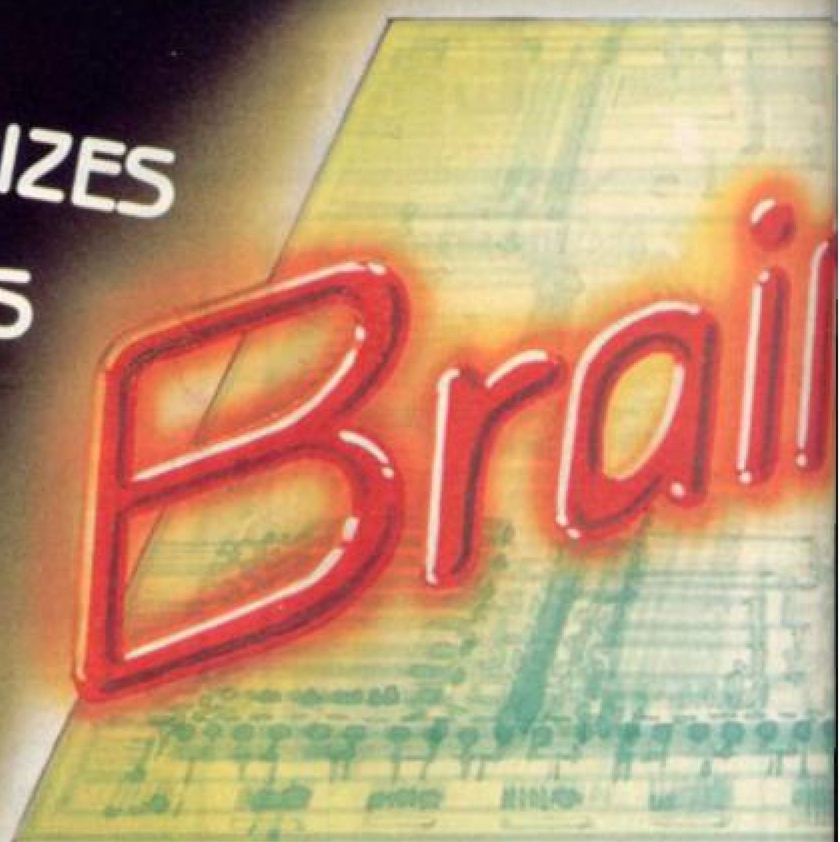

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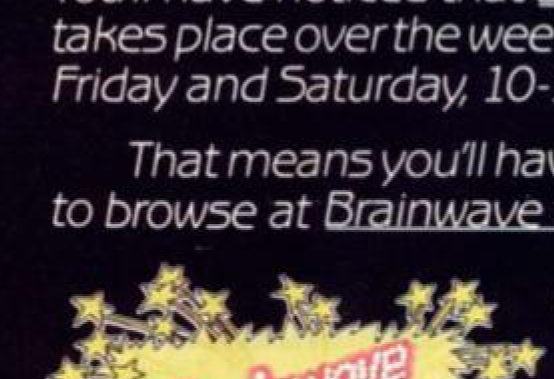

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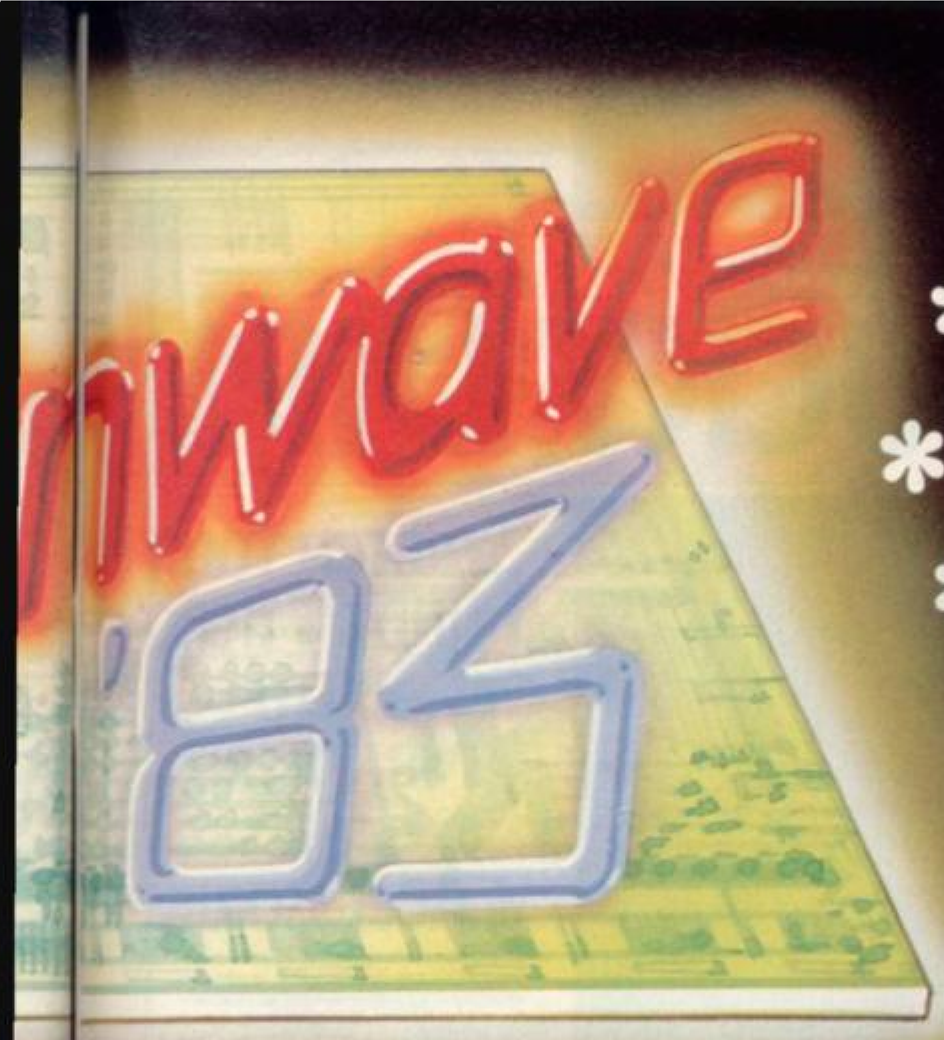

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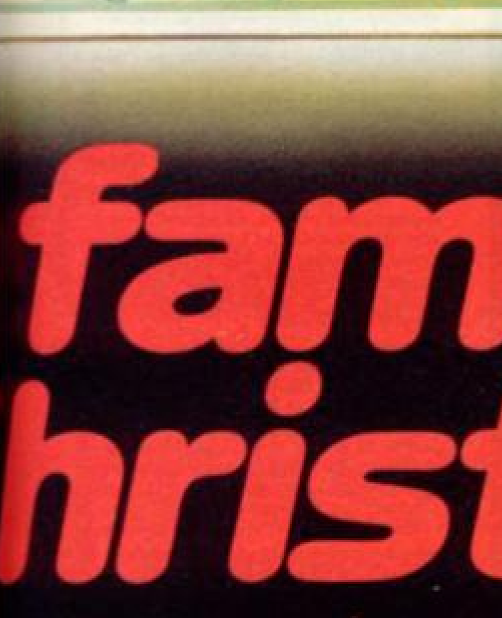
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GREAT SOFTWARE DISASTERS

Krazy Kong has been driving some of our readers madder than that giant gorilla.

This games tape, for the Spectrum, produced by C TECH of Hyde, Cheshire, has already come in for severe criticism on our Mailbag pages and we have received other letters, reprinted here, detailing our readers problems with the game. So we decided to contact C TECH and talk about the gorilla gripes you have brought to our attention. Read on to discover more . . .

I waited over a month for delivery of C TECH's Krazy Kong, which I then found totally unplayable. The advert is designed to mislead. It takes a long time to load and there are only two different screens. The advert said there were three.

I also received C TECH's Gorfian Invaders, but it would not work. I ran through the cassette and got bits and pieces of other games.

Fraser McIntosh,
Netherlee,
Glasgow.

I am writing about the C TECH Krazy Kong. When my copy finally arrived — after a month of waiting — I was shocked. The game I got was either terribly bug ridden (which I doubt) or the advert is designed to mislead.

The game is so fast that it is unplayable but only the 48K version has scoring. I was very disappointed and I am going to send it back.

Iain Reddick,
Kirkcaldy,
Fife.

I am writing concerning the C TECH Krazy Kong for the Spectrum which I bought a few months ago. I found the game very disappointing and the advert very misleading.

The advert said "super hi-res machine code". When I received the game I thought it would have smooth non-flicker animation — not just a jumpy compiled Basic program. The game is unplayable as it is too fast. The "Mario" figure flickers — even when you are standing still. If there are three screens they are impossible to get to as the blobs — I think they are meant to be barrels — fly through "Mario" until your 10 lives are up and a feeble bleep occurs.

The only way to load the game I found was to break into the loader program by turning the computer off and on again and then typing LOAD "KK16" — and it then takes ages to load.

I have sent my cassette back complaining about the game — but have not received a reply for over two months. The more people who voice their anger about this game the quicker it will be taken off the market.

Edmund Scott,
Cliftonwood,
Bristol.

I am writing to you concerning the letter you published in your May edition from Iain Reddick of Kirkcaldy, Fife, about C TECH's Krazy Kong.

I would just like to say that I totally agree with him. I also believe that the advert is meant to be misleading.

Sometimes I find it impossible to load the 48K version, but when I do I never seem to be able to reach the final stage as every time I complete a stage I lose a life and, I assume, return to the beginning. Could this be a bug?

The game is very very fast and definitely unplayable. I too waited for over a month for my copy to arrive and have also decided to return it to C TECH with a letter of complaint.

M. Yates,
Ilkeston,
Derbyshire.

Shirley Fenton, sales director for C TECH, sounded surprised when we confronted her with the complaints.

"It's our very best seller," she said. "I think it's a case of 'you can't please all the people all the time'." She added she was not aware that the company had received any complaints about Krazy Kong, but added that anyone who had problems with the game could exchange it. "We always exchange tapes," she said. "People should just get in contact with us."

"All I can say is that it is our best seller. Do you think if we'd had a lot of complaints we'd still be selling it? Some people just don't like video style games. People either love Krazy Kong or hate it."

So our advice to people who have suffered at the hands of this Kong is to contact C TECH and take them up on Shirley's offer of an exchange tape.

We asked one of our games reviewers, Robert Schifreen, to give us his opinion of Krazy Kong.

"When you start loading the program it stops and asks you to put the machine into capitals mode before continuing loading. An experienced Spectrum programmer would know the location of the POKE which would do this automatically.

"As for the game itself, the graphics are unrealistic, and nothing like the arcade game which the title would suggest it is based on. The man has no moving parts and the "barrels" are unconvincing. On playability I can't comment as I couldn't get the man to jump despite obeying the instructions."

Final word from Shirley Fenton: "If you print any letters you will never get any advertising from us again."

THE SEVEN

THE EMPIRE'S TRADE GAP

The highest trade index this month is at Govax. We had a large number of entries for our Trading Competition but no one managed to get the right answer. The prizes are still available so send in your entries for this month.

The idea is to predict which star will have the highest trade index (figures on the right hand side of the star maps).

Entries should be on postcards or on the back of a sealed envelope. Please don't put your entry in the same envelope with your Seventh Empire orders.

Entries may not be opened immediately if we're busy entering the many hundreds of orders which come in each month.

The Trade Index is calculated by the computer monitoring the number of merchant fleets arriving at and leaving a star system. Traders coming to the star system are the sellers, traders leaving the system are the buyers.

Each star also has a Trade Value which comes into the equation. Hearts are Elixir Stars (worth 200 points), Diamonds are Gem Stars (worth 150 points), Asterisks are Energy Stars (worth 100 points); and circles are Gateway Stars (50).

The crucial equation bringing all these elements together is: Trade Index = Trade Value × Buyers/Sellers. So a system which has seen a mass exodus of traders tends to have the best Trade Index.

So if 50 Buyers leave a Gem Star and 30 Sellers arrive the Trade Index = 250 (250 = 150 × 50/30).

Spotting the best systems to trade with is one of the surest ways of making a killing at the Seventh Empire.

If you can predict which system will have the highest Trade Index next turn we'll provide you with a cassette for your microcomputers.

If more than five of you get the right answer we may have to draw the line at five prizes.

Send entries in to the Trading Competition, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB.

	As	Ba	Ca	Du	Er	Fa	Ga	He	Ix	Ji	Ko	Li	Mu	Nu	Op	Pu	Qa	Ri	So	Tu	Us	Va	Wi	Xu	Yu
Asol			1000		250	500	166			1000	100					1000	250			166					1000
Barov	500		500					1000		1000		1000										1000			
Cazuv	333	1000			1000		1000	333		500			1000	1000			1000	250		250	500			1000	
Dusup						1000			333		1000				1000				500			125	333		
Erak		1000					500		1000				500		1000		1000	1000	1000		1000	1000			1000
Fadis	1000				1000					1000				250		500			500		1000		1000		
Gazor	500	500	83	500	166	125		1000		250	66	166	166		333		83		250	500	1000		111	142	500
Hezod					1000	1000	100				333					100	1000	250	166		250	500	500		1000
Ixip	1000	100	1000	125			1000	1000				1000		1000	500			250		250		83	55		1000
Jinis		250	1000		1000	500	41	1000			500	1000				1000	500	1000						500	
Kolol		1000			250	1000		250		1000			250						125	1000	166		1000		500
Lizag	1000		250		1000		125		1000	1000	500		1000		1000		500		250			1000			
Mupip			1000				1000			250		500		1000	1000	1000		1000		1000				1000	
Nuzet	1000	1000	500			250	1000				250	250	333				1000		250				1000		1000
Opod		1000	1000		250	333			250	1000			1000	500			250		1000			500		500	500
Pulud	125	500	500		1000	1000	166							500			500				500			200	
Qavuv		1000	1000						333		55	500			500	500			500	500					250
Rivev		1000	333		250	1000	166		22		250			1000			55		500	333	333	333	333		
Soner	166	125	333	166		1000		1000	200	125	500			333	1000	500	250			333	1000				500
Tubox				1000					1000	1000	500	250			1000		83	1000			1000		250		250
Usugx	166	1000	250	333	500							1000	250				500		1000	1000			500	1000	1000
Vasux			40	333			1000	1000	125	1000		1000		1000					333				125		250
Widan	1000		250	250			500	1000	166		500			1000			250	333	125	1000		200			1000
Xugod	83						250			250				500		500			166			1000	333		
Yuses		1000		250	250	333	1000							1000		500	333	1000		1000	250		1000		

THE GATEWAY ROUTE TABLE

ANOTHER CHANCE TO ENTER

If the Seventh Empire appeals to you we still have a batch of rulebooks ready to send out. No guarantees I'm afraid but we'll put you ready should any of the 25,000 fleets currently on the map, drop out. Send in the form below.

Please include me in the Seventh Empire Competition.
I name my tribe:

. . . .

My name is: . . . .
Address . . . .

. . . .
Telephone . . . .

PROFITS AND LOSSES

There's some high scoring going on in the Seventh Empire this month, proving that you're getting far better at spotting the profitable star systems.

The high scorer reached an incredible 3,619 which is way above anything else this galaxy has seen.

The player list now stands at over 3,600 — an increase of 200 in one month — so if you would like to add your name to what we are confident is *the biggest single game in the world*, then you'll have to be quick — we can only cope with 4,000 players.

We are currently trying to get the game put in the *Guinness Book of Records* as the game with most people playing against one-another.

Top of the list this month is J. Wright with a total profit of 3,619. His software prize is on its way to Milltimber, Aberdeen.

The month's other top scorers are: R. Crawley of Burgh Castle Marina, Gt. Yarmouth (3,500); J. Woodhall, Rubicon Ave., Wickford (3,055); P. Perren, Dartford Rd, Kent (3,000); T. White, Sandringham Close, Haxby (2,952); C. M. Davies, Church Walk, Owston Ferry, Doncaster (2,940); A. Gritton, Barnstaple St., Winkleigh Devon (2,583); R. Freedman, Eastern Ave., Newbury Park, Ilford (2,580); M. Oakley, Mandeville Close, Tilehurst, Reading (2,555), and in 10th place was P. Tong of Blenworth Crescent, Leigh Park, Havant, with 2,400.

These scores, and everybody else's will be added onto the running total.

Congratulations to all these, and remember that the overall winner of the game after six months will become the proud owner of a Colecovision.

The total number of illegal moves was down on last month, and most people managed to keep track of their seven fleets. If you've lost your's then phone the special Seventh Empire number but ONLY on Friday afternoon as the Seventh Empire computer is not up and running at other times.

Orders for this turn must be with us by 23rd August. If you are unsure whether we received your orders in time we keep a list of any orders which are less than two days late but please don't phone until at least four days after the closing date, and make sure that you have your number to hand.

SCORES

If you know your profit for this month then you can find out how near to the top (or bottom) you came from the figures below: **500+** 162 players; **400-499** 23; **300-399** 27; **200-299** 33; **100-199** 43; **0-99** 2417; **below 0** 907.

To find your trading profit for

TH EMPIRE

the month read the trade indexes off the coloured galactic map. Use the black and white table for gateway jumps profits. Cargo profits are black on white and plunder profits are white on black. The stars you leave are printed vertically, those you travel to are printed horizontally. The new controllers of the imperial fleets are: D'Taans Science Empire Ship — player 3,201; Sun Empire Ship — player 437; Pirate Empire Ship — player 3,271; Bloodline Empire Ship — player 2,863; Dead Empire Ship — player 2,300; Amethyst Empire Ship — player 1,877; Water Empire Ship — player 1,895.

BATTLE REPORTS

There were 36 battles in the galaxy this month. None was successful although the closest fought confrontation was at Apel — as last month.

The battle with the least hope of a victory from the attackers was at Hezod where 372 fleets successfully defended themselves against a solitary attacker.

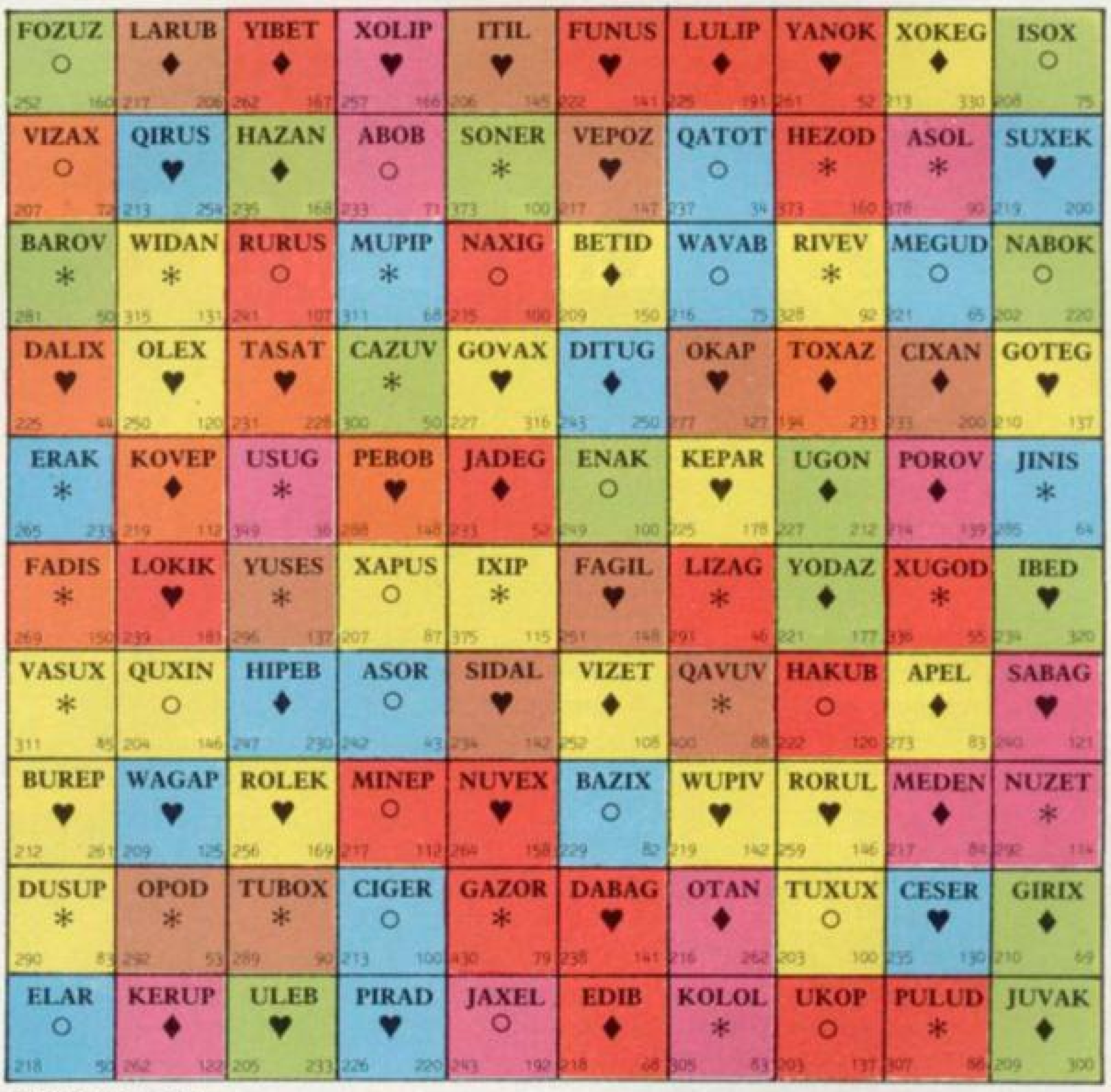
Once again there were no positive battle bonuses. The only non-zero bonuses were all −1, which occurred at Rarov, Naxig, Apel and Rolek.

The diplomatic diagram has changed little this month although the situation at one or two stars has altered dramatically.

On the diagram below, a black line indicates that the two empires are at war.

I predict close battles at Bazix and Qatot, so watch out if you're defending either of those star systems.

The *raid penalty* for this month is again *1*. Imperial fleets finished up at Fagil, Jaxel, Soner, Qiris, Gazor and Vasux.



FOZUZ ○ 252 160	LARUB ◆ 217 206	YIBET ◆ 262 167	XOLIP ♥ 257 166	ITIL ♥ 206 145	FUNUS ♥ 222 141	LULIP ◆ 225 191	YANOK ♥ 261 52	XOKEG ◆ 213 330	ISOX ○ 208 75
VIZAX ○ 207 72	QIRUS ♥ 213 254	HAZAN ◆ 235 168	ABOB ○ 233 71	SONER * 373 100	VEPOZ ♥ 217 147	QATOT ○ 237 34	HEZOD * 373 160	ASOL * 378 90	SUXEK ♥ 219 200
BAROV * 281 50	WIDAN * 315 131	RURUS ○ 241 107	MUPIP * 311 68	NAXIG ○ 215 100	BETID ◆ 209 150	WAVAB ○ 216 75	RIVEV * 328 92	MEGUD ○ 221 65	NABOK ○ 202 220
DALIX ♥ 225 44	OLEX ♥ 250 120	TASAT ♥ 231 228	CAZUV * 300 50	GOVAX ♥ 227 316	DITUG ◆ 243 250	OKAP ♥ 277 127	TOXAZ ◆ 194 233	CIXAN ◆ 233 200	GOTEG ♥ 210 137
ERAK * 265 233	KOVEP ◆ 219 112	USUG * 349 36	PEBOB ♥ 288 148	JADEG ◆ 233 52	ENAK ○ 249 100	KEPAR ♥ 225 178	UGON ◆ 227 212	POROV ◆ 214 139	JINIS * 285 64
FADIS * 269 150	LOKIK ♥ 239 181	YUSES * 296 137	XAPUS ○ 207 87	IXIP * 375 115	FAGIL ♥ 251 148	LIZAG * 291 46	YODAZ ◆ 221 177	XUGOD * 336 55	IBED ♥ 234 320
VASUX * 311 85	QUXIN ○ 204 146	HIPEB ◆ 247 230	ASOR ○ 242 43	SIDAL ♥ 234 142	VIZET ◆ 252 108	QAVUV * 400 88	HAKUB ○ 222 120	APEL ◆ 273 83	SABAG ♥ 240 121
BUREP ♥ 212 261	WAGAP ♥ 209 125	ROLEK ♥ 256 169	MINEP ○ 217 112	NUVEX ♥ 264 158	BAZIX ○ 229 82	WUPIV ♥ 219 142	RORUL ♥ 259 146	MEDEN ◆ 217 84	NUZET * 292 114
DUSUP * 290 83	OPOD * 292 53	TUBOX * 289 90	CIGER ○ 213 100	GAZOR * 430 79	DABAG ♥ 238 141	OTAN ◆ 216 262	TUXUX ○ 203 100	CESER ♥ 235 130	GIRIX ◆ 210 69
ELAR ○ 218 50	KERUP ◆ 262 122	ULEB ♥ 205 233	PIRAD ♥ 226 220	JAXEL ○ 243 192	EDIB ◆ 218 68	KOLOL * 305 83	UKOP ○ 203 137	PULUD * 307 86	JUVAK ◆ 209 300

The Galactic Map

Orders in Block Caps please

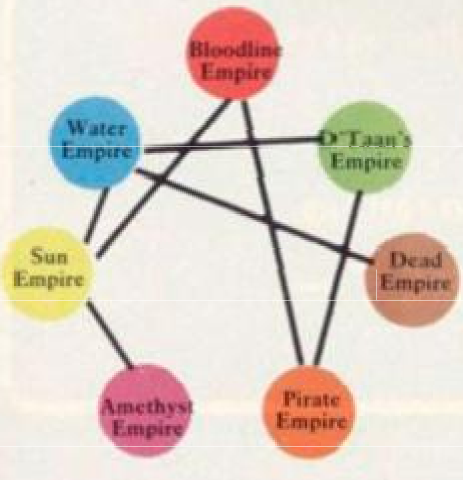
Name: ....

Code No: .... Telephone No: ....

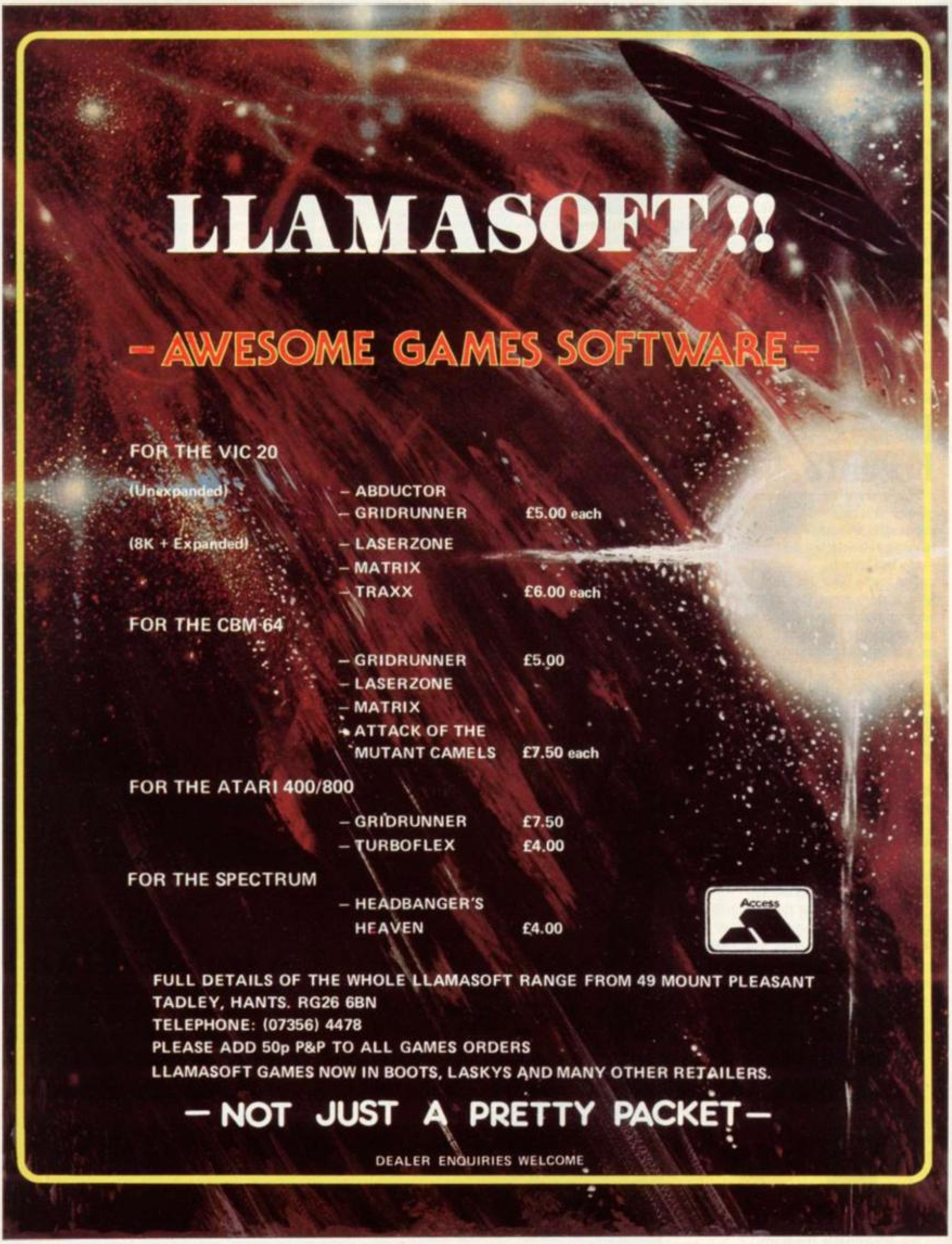
		1st Movement phase		2nd Movement phase	
	AT	ACTION	STAR	ACTION	STAR
FLEET 1					
FLEET 2					
FLEET 3					
FLEET 4					
FLEET 5					
FLEET 6					
FLEET 7					

I wish to move the .... Empire's Imperial Ship from .... to ....

Please notify us separately of any change of address.



The Diplomatic Diagram



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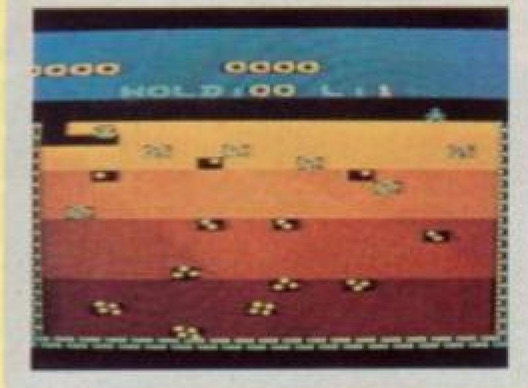
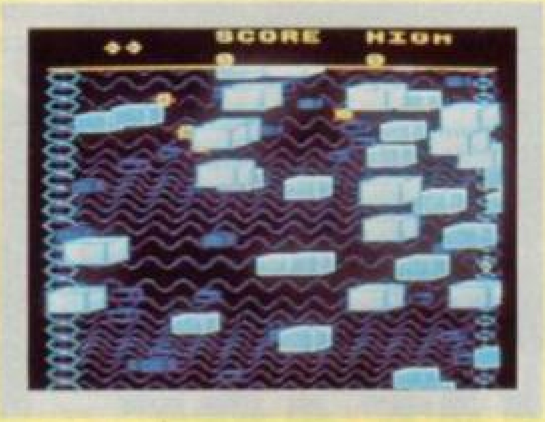


DIAMOND



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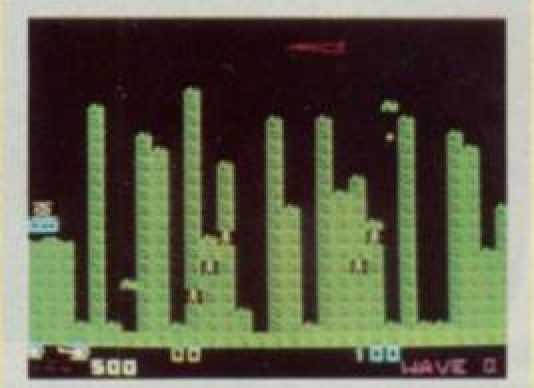
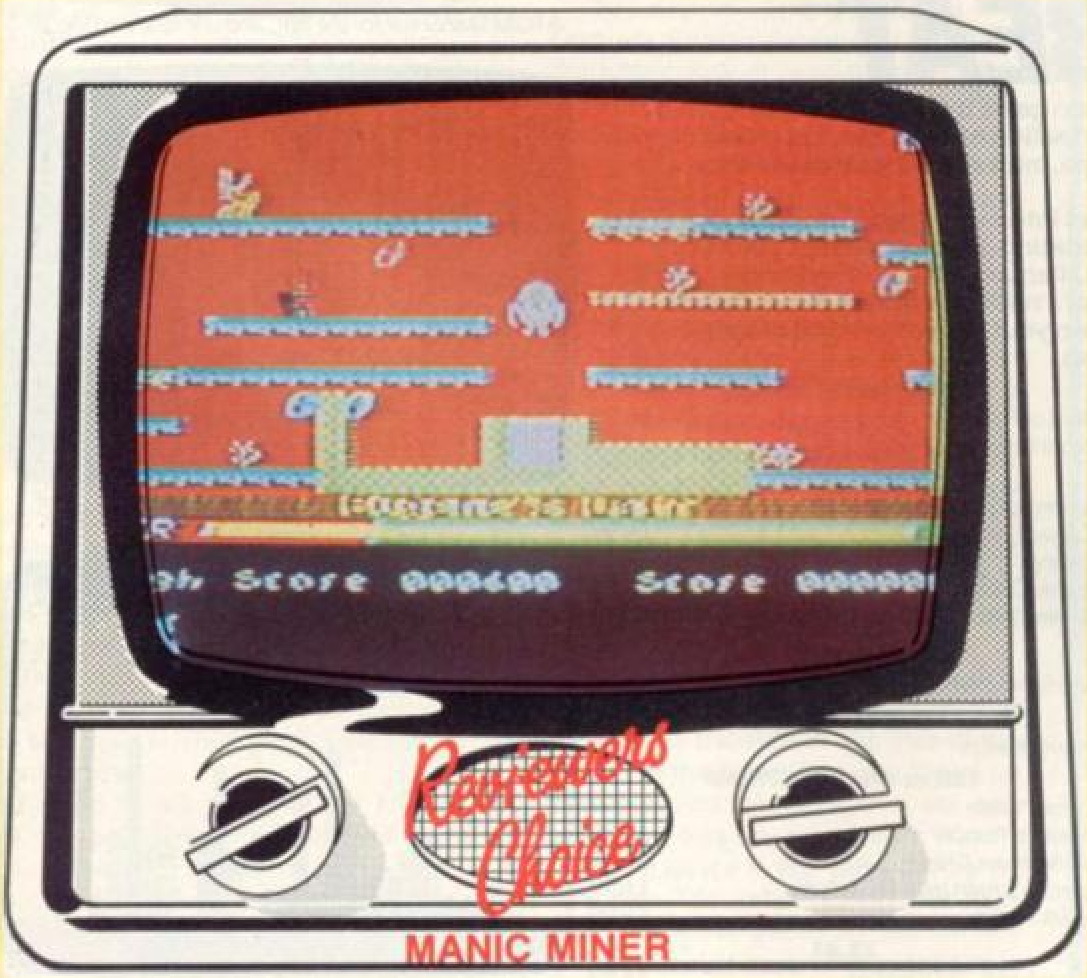
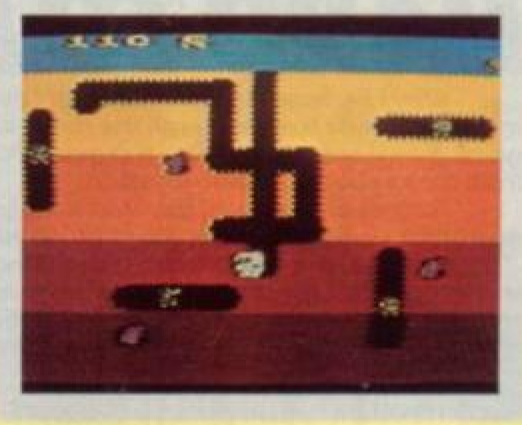


CHOPPER RESCUE



MANIC MINER



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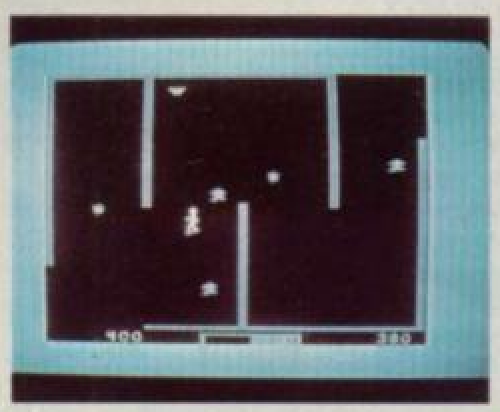
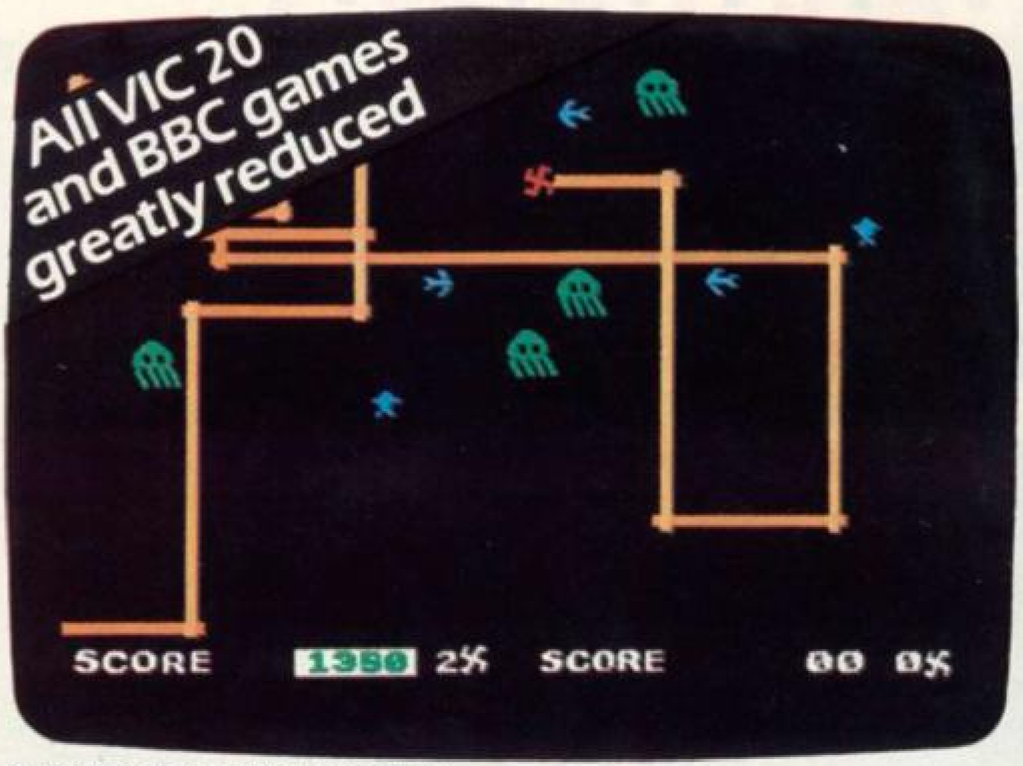


TALKING ANDROID ATTACK

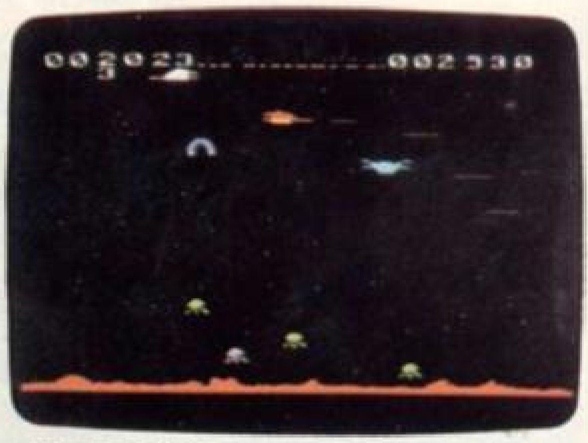
Welcome to the colourful world of computer games! This month our reviewers have been looking at a number of Dig-Dug type games for the Atari home computer — Diamond, Anteater and, of course, Dig-Dug itself. We tell you which we think is best! Then there's our flavour of the month, Manic Miner for the 48k Spectrum. Read about it on page 131. Chopper Rescue gets the thumbs-up from our review team. Find out why on page 130.

Then there's Talking Android Attack, a version of that old arcade favourite Berserk but with the added ingredient — voice power. Read our opinion of this interesting innovation on page 129. Meanwhile under the ocean-waves lurks the Sealord, ready to blast your tiny submarine out of the water. Learn about the shell wars on page 131.

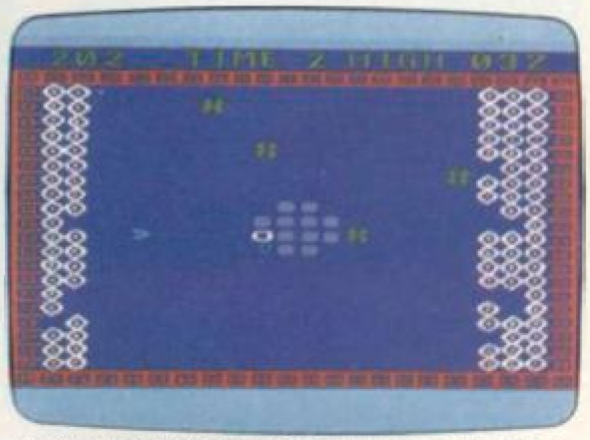
We also thought it was about time we reminded you how we judge these games. So you'll find a rundown of the categories on page 132. So now, turn the page and get stuck into those games . . .



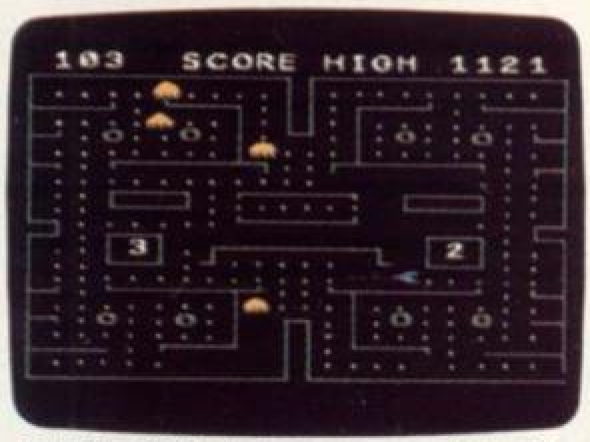
SHARK ATTACK for the 16K or 48K Spectrum



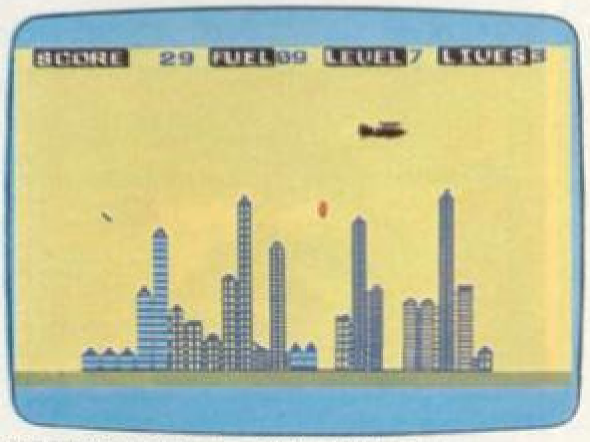
TIME DESTROYERS for the expanded Vic 20 (3K+)



ATOM SMASHER for the BBC and unexpanded Vic 20



POWER BLASTER for the Lynx and unexpanded Vic 20



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ARMCHAIR RACE FANS REV-UP!

3D GRAND PRIX

Put your foot down and accelerate away from the pits in this grand prix simulation for armchair racing fans. Five laps of the track will test the slickest of computer drivers to the full.

3D Grand Prix shows the view through the windscreen as the track is eaten up by your slick machine. Full controls are featured, including accelerator, brakes, and six gears.

A lap counter shows you how many times you have been around the track and the number of laps left. Displays also include a rev counter and a fuel gauge.

Weather conditions will affect your lap speed just as in a real race and you receive two reports on the elements every five laps.

Other cars in the race are passing you and you them so you will have to steer carefully to stay in the game.

Keys O and P control your direction, and L enables you to brake. Graphics are reasonably good for the ZX81 — especially as this program has to simulate depth as the track and cars disappear into the distance.

There are numerous other obstacles and eventualities — such as spinning off at a bend or crashing into the car in front of you.

Control of the gears is the key to success in 3D Grand Prix and it will take you some time to learn how to work your way up through them gradually, to derive maximum benefit.

3D Grand Prix is the latest game for the ZX81 from Artic Computing of Hull. It is in the shops now at £4.95 for the 16k machine.

Driving games are rarely attempted on home computers. Unfortunate this, as they can be extremely entertaining. Full marks to Artic for having a go on such a limited machine — and for making such a good job of it as well.

● **Getting started**	8
● **Graphics**	7
● **Value**	7
● **Playability**	7

CAN'T TELL TALK FROM MUTTER!

TALKING ANDROID

Talking Android Attack is a great idea — unfortunately it just doesn't come quite come off.

A sythesised voice could add so much to the playability of any game but in this case the androids could do with some elocution lessons.

The idea is identical to that old favourite Berserk except that you have the added task of recovering treasure from each of the rooms you visit while avoiding the robotic nasties that lurk within. The androids are determined not to let you get at the treasure and are armed well enough to stop you dead in your tracks.

Microdeal claim that the best feature in their game is the talking. However I could get no sense out of this synthesised voice, despite offering such a challenge to the entire office.

The idea behind this game is to steer your robot through the rooms while avoiding the deadly walls and also the roaming androids. You are equipped with a laser gun which can fire in eight directions depending on which way you happen to be travelling.

Movement is controlled with a Dragon joystick. It takes the robot almost 15 seconds to travel from one side of the screen to the other. This puts him at no real disadvantage, though, as the pursuing androids are no faster.

The graphics in the game are barely average. The robot moves his legs when he walks but in my opinion this gimmick should have been sacrificed in the interest of speed.

The rooms themselves are made of crude graphics blocks and the exits are far too wide.

Not one of the better Dragon games this, I'm afraid, and really not worth the £8.00 price tag. However, if you want to see for yourself then it's available from Microdeal of Cornwall.

● **Getting started**	8
● **Graphics**	6
● **Value**	2
● **Playability**	2

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DOWN UNDER WITH THE MONSTERS

DIG-DUG

Software writers from three continents have just launched rival games based on the arcade hit — Dig-Dug.

Game America is the official version and comes from the Atari stable. As with the majority of Atari arcade conversions Dig-Dug is a reasonably authentic copy.

You are the little character Dig-Dug who tunnels his way through the soil in a bid to unearth and kill the monsters.

When all the fire-breathing monsters have been eliminated a new screen is started.

To add interest you can also collect bonus points by gobbling the fruits which appear at random.

This is a simple and absorbing game which will doubtless sell well on the strength of its arcade pedigree.

Slightly more original — though still based on the underground tunnelling idea of Dig-Dug — is Anteater from Romox. You are an ant and your task is to bring four eggs safely back to your nest without being sniffed out and eaten by the Anteater.

You are armed with four delayed action bombs which you can use to wipe out an Anteater which is in hot pursuit. Using the bombs is the most enjoyable part of Anteater though you only have four of them — so use them sparingly.

When you have cleared one screen the next screen presents two anteaters, then three — and all the time the game is getting faster and faster.

Anteater is manufactured in the Phillipines for Romox of California. Like Dig-Dug it is in cartridge format costing around £30.

The best of the bunch is our very own home grown Diamonds — from the English Software House.

This takes the digging concept of the game a stage further and introduces several other characters to improve the game play.

You have to collect diamonds that are buried in the earth. Trying to prevent you from collecting the jewels are fireflies which chase you with great speed, there is also Brian the Blob, Simon the Snake, the Eyes, and the Demon.

Philip the filler also comes into the game in the later stages filling in the tunnels you have already dug — don't let him catch you!

Diamonds scores over the other two games in that greater strategy and planning are required to clear each screen.

There is also the added challenge that in Diamonds if you get to the sixteenth screen you will get to see the Great Diamond. It will take a great deal of practice to get this good — and the Manchester-based software house are offering a prize of a real diamond to the first person to do this.

Software
R·E

Available on cassette or disc for the Atari 400/800 at £14.95 — a superior game at half the price of Dig-Dug and Anteater.

	Dig-Dug	Anteater	Diamonds
● Getting started	7	7	8
● Graphics	9	7	8
● Value	4	4	9
● Playability	6	7	8

RESCUE THOSE STRANDED SCIENTISTS. . .

CHOPPER RESCUE

The helicopter leaves its normal environment in Chopper Rescue, to go on a mission of mercy underground.

Five scientists are buried below a pile of radioactive waste and you have to guide your helicopter towards them, blasting and bombing to create a network of tunnels.

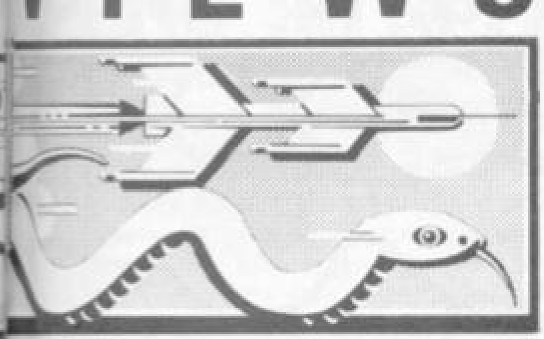
Through these you fly to bring the scientists out and back to safety on the helipad.

So far this might sound easy — once you've learnt how to use the keys to control your helicopter — but the whole operation is made excruiatingly difficult by an enemy bomber dropping more waste to fill in the tunnels and devastating bombs which scythe through the whole lot; and all the time your fuel supply is rapidly running out!

The graphics on this program are effective while not exceptional — the routine for the disintegration of the helicopter takes up too much time — but it's not really a game that is dependant on pretty colours.

The major playing drawback is that it requires five-fingered control on the keyboard version, but this can be overcome with practise and does not apply to the joystick version.

It is an addictive example of a good old fast-playing test of skill — you can wreck your three helicopters very quickly indeed — and the next game



begins immediately the last one finishes, compelling the player again and again to have "one last go" for a higher score.

Best features of the game are the slow discovery of the various tactics and the extraordinary frustration of knowing how everything works but not managing to make them work together.

Chopper Rescue is available for the 48k Spectrum from Blaby Computer Games of Leicester at £5.95. A very good machine-code arcade game to have in stock!

● **Getting Started**	8
● **Graphics**	5
● **Value**	7
● **Playability**	8

PENGUINS MAKE LIFE PERILOUS!!

MANIC MINER

There's humour, horror and wholesome addiction awaiting the intrepid hero of the marvellous Manic Miner.

From perilous penguins to ferocious phones, this Bug-Byte game is filled with the most unlikely villains trying to thwart your progress through to the next cavern.

Miner Willy must explore the underground caverns and collect the keys which open the door to the next cavern.

Miner 2049'er, which runs on an Atari, is considered a big game with its 12 screens. Manic Miner has 20 and each is a game in itself.

The designer of this game has come up with some highly original scenarios; my personal favourites include Attack of the Mutant Telephones and also the man-eating toilets. The bank scene is very clever, but don't get caught by the bouncing cheque!

Although the game is not written for use with any particular joystick it should run on those which allow the interface to be programmed to use certain keys.

I found the movement keys quite easy to master and have so far managed to reach level four. A secret message awaits you if you successfully complete all 20 levels and Bug Byte promise a prize to the first such person.

Timing is the key to success. Once you have mastered a screen, you will usually have little difficulty in clearing it every time. Some levels, though, take a long time to solve especially as you have to start at screen one each time your three lives run out.

One of the qualities which make a game a winner is whether you'll keep coming back for more. Manic Miner scores well here, as it will take some time to complete.

When the impressive title frame comes up, you are told to press a key to start. If you don't, the game will cycle through all 20 screens giving you a short preview of each.

Impressive graphics and good sound, Bug Byte have produced a challenging game with long-lasting appeal.

Manic Miner runs on a 48k Spectrum and is well worth the £5.95 charged by this Liverpool software house.

● **Getting Started**	9
● **Graphics**	9
● **Playability**	9
● **Value**	9

SHELL WARS UNDER THE OCEANS

SEALORD

The ghostly voice of the Sealord reverberated through the deep: "So you have sunk my Shell Fighters, my Smart Mines will finish you off." And they did!

In Sealord, one of the latest offerings from Liverpool-based Bug-Byte, you find yourself in control of a submarine when you stumble into the Sealord's underwater empire. Immediately you are under attack from one of many waves of the Sealord's henchmen.

Your submarine is controlled by two keys which rotate the sub anti-clockwise and clockwise. When the key is released the sub travels in the direction it is facing. I found it almost impossible to manoeuvre the sub with any degree of accuracy and found the haphazard way of moving very frustrating.

Graphically the best part of the game is when you get zapped by an alien. The rocks on the seabed, which resemble blue and white rectangles, flash in a gratifying way as the explosion rocks the screen.

A bonus to the game is a 3-D effect to the rocks enabling you to disappear when you sail behind them. The aliens can also do the same and can catch you unawares.

Sealord, one of the latest offerings from Liverpool-based Bug-Byte, runs on the BBC Model B at £7.50.

● **Getting Started**	9
● **Graphics**	4
● **Playability**	4
● **Value**	5

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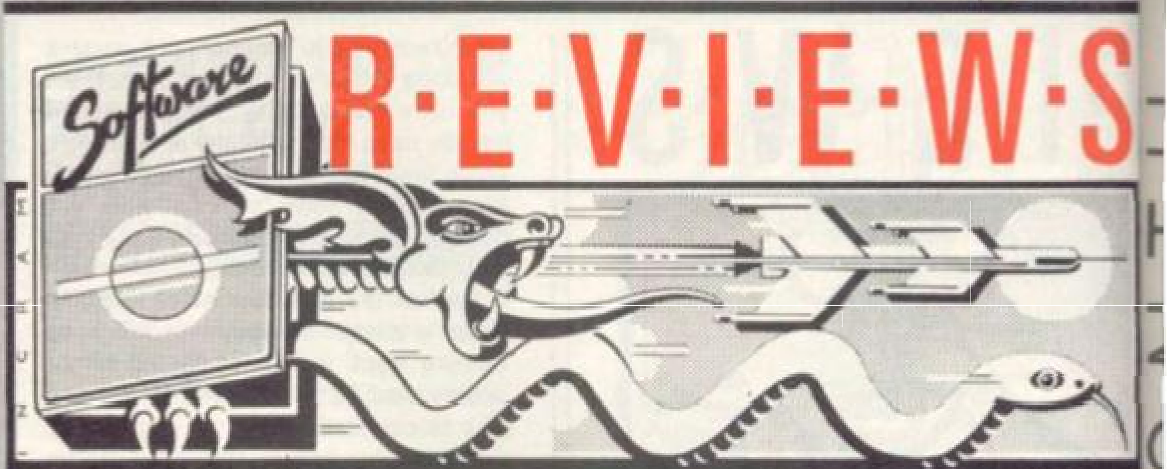


CLASSIC GAME FOR A NEW MACHINE

SUPER SCRAMBLE

Every new machine soon acquires a library of classic games. Pac-Man, Space Invaders, Galaxians — every games player worth his joystick will want a decent version of these titles in his collection.

One of these classic games is Scramble — the famous scrolling arcade game that still holds on to prime positions in pubs and arcades — although its cabinet may now be pretty battered.

Not surprising then that among the first wave of games for the new Commodore 64 should be a version of Scramble. Terminal's Super Scramble sticks fairly closely to the arcade version.

For those of you who have never seen Scramble — where have you been! — here's a brief rundown on the game.

You begin scrolling over mountainous terrain bombing fuel dumps and ground to air missiles. As you advance further the missiles are fired at you — leaving the ground with a most realistic swishing sound.

There are also blue helicopters on the ground that you can pick off for extra points.

Terminal have managed to produce very smooth scrolling graphics. The ground unfolds gently and evenly. The second and third waves are not quite so close to the arcade game — but this does not detract from the quality of the game.

There are no spiralling yellow aliens or red fire balls. Despite this there are plenty of obstacles and hazards to be overcome. You'll read all about them later in this review!

A careful eye on the fuel gauge is vital in this game and you can't afford to miss a single fuel dump. An audible signal would have been an improvement to show when the fuel supply is running down. Fuel is very important as you move further into the Scramble system.

You'll need to be a skilled pilot to get through the narrow cave sector — particularly on the second time around as bouncing aliens rebound towards you off the roof and floor of the cave.

Dodge them and it's off to more action and adventure in your quest for the giant spaceship which must be destroyed for a successful mission.

Just two gripes — it's difficult to stick to the ground and shoot up everything as it appears out of the left of the screen as you can in the arcade version — this is due to the slow speed of fire and awkward shape of the ship.

The flight information is also poorly presented using a narrow strip at the bottom of the screen which is difficult to read during the game.

These two points aside, Super Scramble is an excellent game and is available now from Manchester-based Terminal Software at £7.95.

● **Getting started**	9
● **Graphics**	7
● **Value**	8
● **Playability**	7

HOW WE JUDGE THE GAMES

The four marks on our Reviews pages are all out of a possible 10.

Getting started **refers not only to how easily it loads but the way the instructions are given and how quickly a newcomer can understand the game.**

Graphics **gives marks for realism and use of the machine's capabilities to give a pleasing effect.**

Playability **is the all-impojtant question of game balance, how long it will hold your attention and how addictive it is.**

Value **takes into account the packaging, presentation and how much a player will get value for money out of the tape.**

We owe an apology to Sinclair and Psion for printing the wrong price by their Scrabble cassette in the August Reviews section. Scrabble costs ***£15.95*** **not £25.95 as we stated. This was a type-setting error and the reviewer was aware of the correct price and his comments about it and his value mark still hold true.**

N·E·X·T · M·O·N·T·H

THE 3D SPECTACULAR

Be prepared for a front cover with a difference in your newsagents on September 16th.

For the October issue of *C&VG* is going 3D in a big way. We're giving away a pair of 3D specs (one red lens, one blue lens) with every issue and you'll be able to use them to see our fascinating 3D effects on your computer.

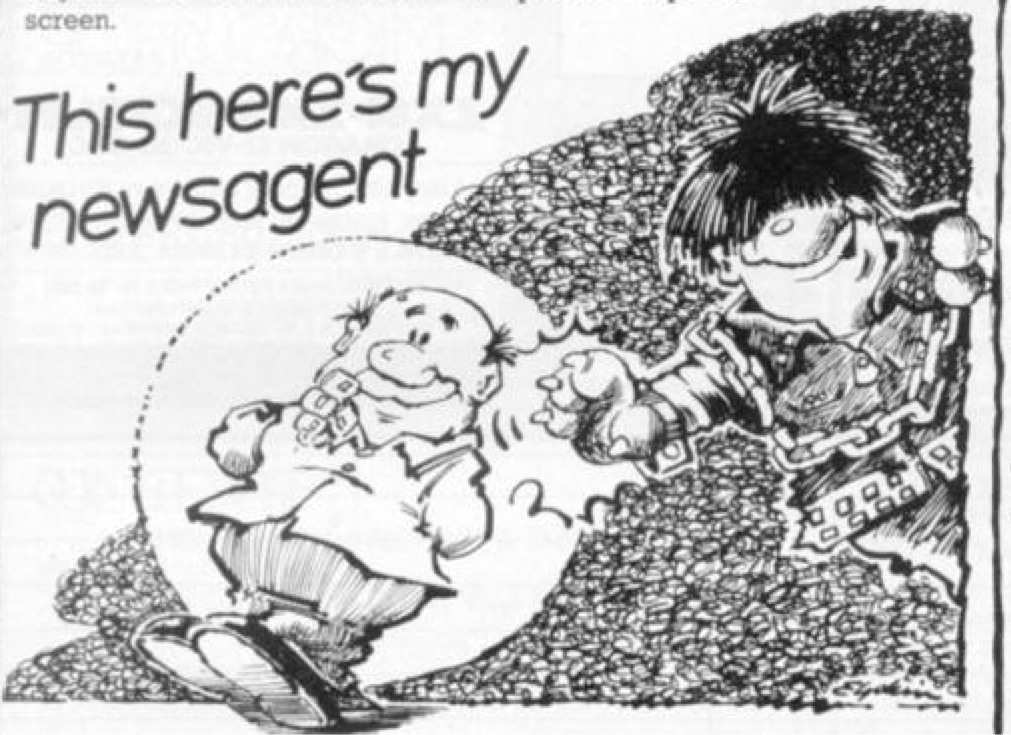
There's an article on how to turn your games into real 3D — not the kind us gamers are used to with things getting bigger as they rush towards the front of the screen — but 3D which makes it appear that a space ship is materialising actually beyond the confines of the TV screen.

There's game listings using this effect for the BBC, Atari, Spectrum, Vic and Commodore 64 and armed with the specs and Mike Singleton's article on 3D gaming you'll be able to produce your own Steroscopic games in the future.

And now for the bad news. Your *Computer & Video Games* will cost an extra 10p next month.

We've managed to keep the price at 75p for nearly two years and now find we have to increase it.

But we hope you agree with us that the October issue is still the best value-for-money computer magazine on the market — even at its new price of 85 pence.



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GAME OF THE MONTH

Game of the Month is the new section in our October issue's Reviews section.

Not only will we be giving you the low down on a range of eight to 10 of the more interesting computer games to hit the market, but we'll also be picking out one with a hot recommendation as the best game we've seen that month.

And if it fits the bill we'll be adding it to our Hall of Fame collection. And if you're fast on your fire button you could take first place in our Hall of Fame in October. We'll be waiting for the coupons to come in with your best scores on it and look forward to setting new targets to aim for. And yes Arcade Arena WILL be in our next issue. Really!

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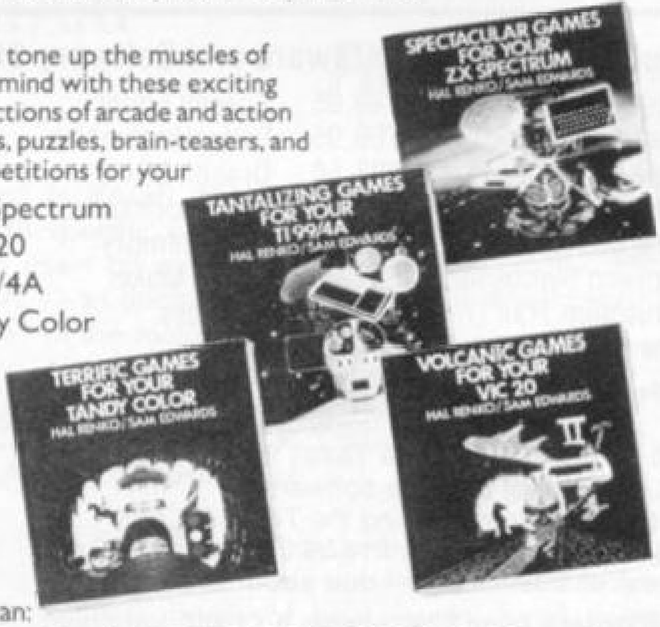
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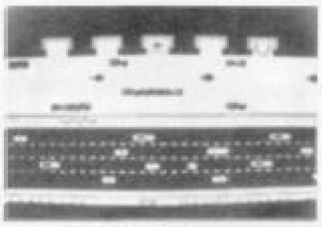

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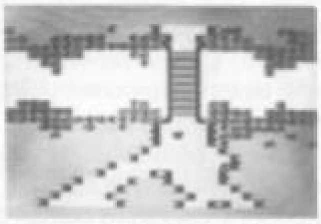

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death, terror and destruction
massive three-legged fighting machines
intelligent plant
Redweed everywhere
10 miles away
SAVE LONDON AT ALL COSTS

- Can Britain rely on **YOU?**
- Will **YOU** defeat this challenge?
- Can you manoeuvre your tanks, artillery and infantry on the battlefield?
- Can you destroy the flesh eating **REDWEED** with your flame throwers before it disables your army?
- Will you be able to lay an effective minefield and attack the **MARTIAN TRIPEDS?**
- Will you escape the Martian weapons?
  - — Projectile accelerators
  - — Blast Canons
  - — Laser Guns
  - — Gas Capsules
- If **you** can answer **YES** to the above **you should be playing REDWEED.**

NOTE This is not an arcade game but a full-graphics tactical Wargame.

- **15 Levels** of play
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REDWEED
Spectrum 48K

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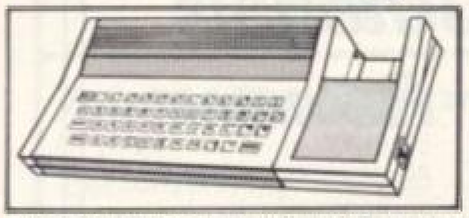
HOME COMPUTERS

20K AQUARIUS



AQUARIUS: The brand new Aquarius Personal Computer is part of Mattel Electronics latest developments in advanced technology and offers full home computing facilities, as well as extensive game play, using a very wide range of plug in cartridges. Since Aquarius is a Mattel Electronics product, it benefits by the company's wide experience of producing high technology equipment, as well as their game programming expertise which is evident from the advanced games which have been produced for the Intellivision. Aquarius costs £99 and comes with microsoft basic built in. It is so simple to use that you'll be writing your first programs within minutes of taking the machine out of its box. You can even record the programs on your own cassette recorder at home, so you can use them again at a later date. Most available domestic tape recorders are compatible with the Aquarius.

A POWERFUL MACHINE: For all it's simplicity, it is also very sophisticated. It has a Z80A processor and it comes with 8K of built in ROM and 20K of RAM, expandable to 52K. It has a display of 40x24 characters, and a graphic resolution of 320x192 with a total character set of 256 (including the complete ASCII set with upper and lower case letters, numbers and additional graphic symbols). The keyboard has 49 full stroke moving keys, unlike some of the cheaper machines which have membrane keyboards. The size of the machine (excluding any of the additional peripherals), is 13"x6"x2".

PERIPHERALS: It is very easy to increase the capabilities of your Aquarius as all the peripherals plug straight into one another. You can add a Printer, a Modem, a Data Recorder, Mini Expander and other items. All of the peripherals are very easy to install and what is more, they're easy to use. But the best news of all is, they're easy to afford.

CPM OPERATING CAPABILITY: The Aquarius is capable of being expanded to 52K RAM and later in 1983 a disk drive will be available for it, with the commercial CPM business operating system. This will allow you access to one of the largest software libraries in the world, with literally hundreds of programs available for you to use.

CARTRIDGES: Various sophisticated programs will be launched on plug in cartridges such as a Visicalc type spreadsheet and a word processor. In addition there will be dozens of games and utilities and alternative languages such as Logo, which combined with the built in microsoft basic gives an unbeatable combination of high quality programming ability.

20K MATTEL AQUARIUS – £86 + VAT = £99

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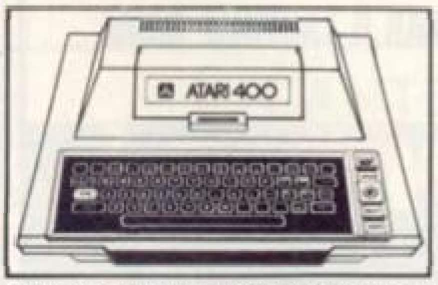
ATARI 400/800



NEW LOW PRICES

ATARI 400/800: With the Atari Personal Computers, you can play the ultimate in T.V. games, teach yourself new subjects or skills, balance budgets, and even write your own computer programs in Basic.

SPECIFICATIONS: Both the Atari 400 and 800 can display in up to 16 colours, each with 16 intensities. They have four independent sound synthesizers for music tunes/game sounds, giving four octaves with variable volume and tone control on your T.V.'s speaker. The display graphics are of amazing quality, having a detailed resolution of 320 x192, comprising 24 lines of 40 characters. Atari personal computers have a standard 10K ROM operating system. In addition the standard Atari 400 (£129) comes with 16K of RAM and the expanded version with 48K (£178). The Atari 800 (£279) comes with 48K as standard. Both the 400 and 800 are now supplied with a FREE £40 Basic Programming Kit, which includes the Basic Programming Cartridge, as well as a 120 page Basic Reference Manual and the 184 page Self Teaching Manual by Bill Carris called 'Inside Atari Basic', so you can begin programming straight away, without buying any 'extras'. Even a mains plug is supplied!

OVER 500 PROGRAMS AVAILABLE: The Atari computers are supported by well over 500 programs available for your use, a larger selection than you will find on any other television game or home computer! The wide selection puts Atari way ahead of the competition. Just fill in the coupon and we will be pleased to send you a full price list which gives details of our range of software available for entertainment, home education, programming and home office use. We think you'll agree when we say it's quite impressive.

100 FREE PROGRAMS FROM SILICA SHOP: If you buy your Atari Home Computer from Silica Shop, you will recieve a FREE presentation pack of 6 cassettes, containing 100 programs including games, utilities and demonstrations. A 16 page booklet giving full details of all of these programs is available on request. If you have already purchased your computer elsewhere you can buy the set of 6 cassettes for £30. What's more, Silica Shop offer a two year guarantee on all computers as well as a FREE joystick. This adds up to a great offer that we believe can't be beaten or matched by any of our competitors.

ATARI 400 16K – £112.17 + VAT = £129
ATARI 400 48K – £154.78 + VAT = £178
ATARI 800 48K – £242.60 + VAT = £279

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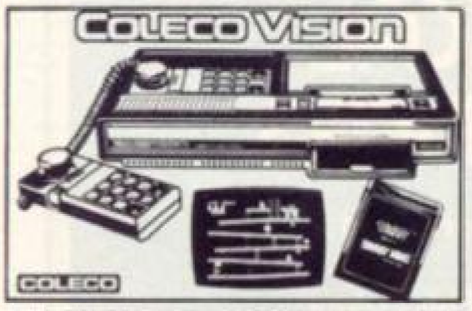
VIDEO GAMES

COLECOVISION



THE SYSTEM: The CBS Colecovision offers new standards in video game play. The excellent graphics are well implemented with arcade titles such as Zaxxon, Lady Bug, Gorf, Wizard of Wor, Carnival, Mouse Trap and the lovable Smurfs. The console comes supplied with a three screen arcade quality version of DONKEY KONG. Parker and other companies have also announced ranges of cartridges for Colecovision, to further enhance the wide range of quality titles available for this new television games machine.

THE CONSOLE: The CBS Colecovision video games system has advanced technology which produces superlative graphics resolution and excellent sound effects. The styling of the console and hand controllers has been carefully researched; the console is designed to complement modern hi-tech equipment, and has clear features for easy operation. The hand controllers allow fingertip control via the 8 direction joystick, and feature 2 independent fire buttons. The push button keyboard is used for game selection and for game control with some cartridges. The hand controllers are detachable and are connected to six feet of telephone coil cable, storing neatly away in the console when not in use.

ATARI EXPANSION MODULE: The Atari converter module allows Atari VCS software cartridges to be played on the Colecovision console, allowing owners the freedom to purchase from the extensive range of Atari compatible cartridges. It also means that existing Atari owners can buy the CBS Colecovision games system without discarding their software library. Silica Shop offer part exchange facilities if you wish to upgrade.

TURBO EXPANSION MODULE: The Turbo Driver Expansion Module allows you to actually drive the vehicle that appears on your T.V. screen. The module consists of a steering wheel, dashboard and accelerator pedal. One hand controller is mounted on the dashboard to provide a gear change unit. The module comes complete with a Turbo Driver cartridge, the first of several cartridges to make use of the module, which provides all the action of sitting in the driving seat. This facility is unique to CBS Colecovision.

HOME COMPUTER EXPANSION MODULE: The Home Computer Module scheduled for late 1983, allows conversion of the games unit into a sophisticated Home Computer. This flexibility of design is an important feature of the CBS Colecovision System.

COLECOVISION - £127.82 + VAT = £147

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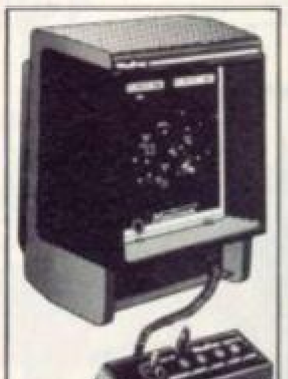
VECTREX



THE SYSTEM: Vectrex is a totally unique Home Arcade System, which has been exclusively designed and engineered to duplicate real arcade game play. Complete with its own monitor display, Vectrex won't cause any arguments over the use of the family's television because it has its own built in screen.

THE SCREEN: Vectrex does not use ordinary display techniques, instead it uses vector scanning to control the images on the screen. With this scanning method, the gun only updates the area of the screen that has changed, whereas a normal T.V. re-transmits the ENTIRE screen 50 times a minute. It is this that gives Vectrex its speed, and means that very little computer power is required for screen control, and the results provide very fast responding and clear images. These 'Vector Graphics' are used in several arcade games such as Asteroids and Battlezone, to give you incredibly high resolution and quality. Vectrex brings all of this from the arcade right into your living room. The Vectrex screen is capable of displaying 80 columns by 40 lines, which is significant to the extensive developments planned for the system.

EXCITING SOUNDS AND ELECTRONICS: Vectrex has an advanced microprocessor with more speed and power and exciting effects than many home video games systems.

REAL ARCADE CONTROLS: Vectrex has a unique control panel, similar to those used in many real arcade games, with 4 concave action buttons and a full 360° self centering joystick. This control panel has a 4 foot detachable cord for maximum player freedom.

REAL ARCADE GRAPHICS: Vectrex has its own 9 inch vertical screen and unlike a conventional T.V. screen, uses advanced display technology to achieve brilliant, high resolution imagery and superb game play never before possible. The Vectrex display provides special effects too, such as 3-D rotation and zooming in and out, which a regular T.V. cannot match. Using a black and white monitor, each Vectrex game comes supplied with its own coloured plastic screen overlay to add to the excitement of game play. The range of Vectrex cartridges (£19.95 each), gives a good selection of arcade games such as Berzerk, Scramble, Rip-Off and Bomber Attack. Vectrex comes complete with a fast paced 'Minestorm' game built into memory.

VECTREX: Vectrex has an advanced state-of-the-art microprocessor with more speed than other T.V. games.

VECTREX – £112.17 + VAT = £129.00

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Silica Shop are one of the leading specialist suppliers of Video Games & Personal Computers. We consider that our service, to those who already own or to those who are interested in any products in our range, cannot be matched by any other supplier. Just look at what we have to offer:

- **SHOP DEMONSTRATION FACILITIES** - we provide full demonstration facilities at our shop in Sidcup, so that you can get 'hands on' experience of our range.
- **SHOP OPENING HOURS** - we are open from Monday to Saturday 9 am - 5.30 pm, but close at 1 pm on Thursday's and 8pm on Friday's.
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- **SECONDHAND GOODS** - we sell secondhand Mattel & Atari consoles/cartridges (with a full 1 year guarantee), at two thirds of our normal retail price.
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- **2 YEAR GUARANTEE** - we offer a 1 year extension on some manufacturers 12 month guarantee, including Atari Personal Computers.
- **VIDEO GAMES AND COMPUTER CLUBS** - we offer a full information service on all video games and computers in our range. Advanced information on many new developments is often included, so you are always kept informed. We now issue regular newsletters on software releases so make sure that you join our club.
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ATARI

ATARI VCS (2600) – THE NO 1 BRAND LEADER IN THE U.K.

ATARI: The Atari Video Computer System known as the Atari VCS or the 2600 has now become the T.V. game brand leader. In the U.K. there are over 700,000 owners of the VCS with access to a range of over 200 different plug in cartridges, each having a multitude of different variations and difficulty levels. Every system comes complete with the main console, two individual joystick controllers, a pair of paddle controllers, aerial splitter, mains adaptor, a 27 game Combat cartridge and a **FREE** 112 game **SPACE INVADERS** cartridge. The console also incorporates special circuits designed to protect your T.V. set.

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VCS COMPUTER KEYBOARD: A keyboard will soon be launched to convert the VCS into a fully programmable home computer. For further details, join our club by completing the coupon below. We will then let you know when further information is available.

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MATTEL: Arctic Squares, Burger Time, Buzz Bombers, Chess, Cloudy Mountain, Loco Motion, Mission X, Mystic Castle, Sharp Shot, Solar Sailor, Space Shuttle, Vectron, Winter Olympics. **ACTIVISION:** Happy Trails, Pitfall, Stampede. **C.B.S:** Blue Print, Carnival, Donkey Kong, Gorf, Mousetrap, Smurf, Solar Fox, Turbo, Venture, Wizard of Wor, Zaxxon. **IMAGIC:** Beezer, Dracula, Ice Trek, Nova Blast, Safecracker, Swords & Serpents, Tropical Trouble, White Water. **PARKER:** James Bond 007, Lord of the Rings, Popeye, Q-Bert, Spiderman, Star Wars, Super Cobra, Tutankham.

COMPUTER KEYBOARD: In July/August 1983, Mattel will be launching their new £89, 49-key computer keyboard attachment called 'Lucky' which is fully programmable and has microsoft basic built in. It will transform your Master Component into a home computer. The adaptor also accepts a 6 note polyphonic music synthesiser and full size 49-key piano keyboard that will make learning music as easy as playing games.

MATTEL + VOICE – £85.22 + VAT = £98.00

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In a fast moving market like video games, it is difficult to keep up to date with all the developments that take place. With new programmes and accessories being introduced at a fast rate by several different manufacturers, it is impossible to get all the information you require from one manufacturer alone. It is for this reason, that we have set up owners clubs for the more popular video games and home computers, to keep you fully up to date with what is going on with your particular machine. As far as we know, Silica Shop are the only company to offer such clubs, but that is not surprising since we are the specialists. We currently have **FREE** clubs for the **Atari VCS**, **Atari 400/800** home computers, and **Mattel Intellivision**. Soon we will have clubs for **Colecovision**, **Aquarius** and **Vectrex**. So if you own one of these machines, fill in the coupon opposite, and we will enrol you **FREE OF CHARGE** in the club relevant to your computer or video game.

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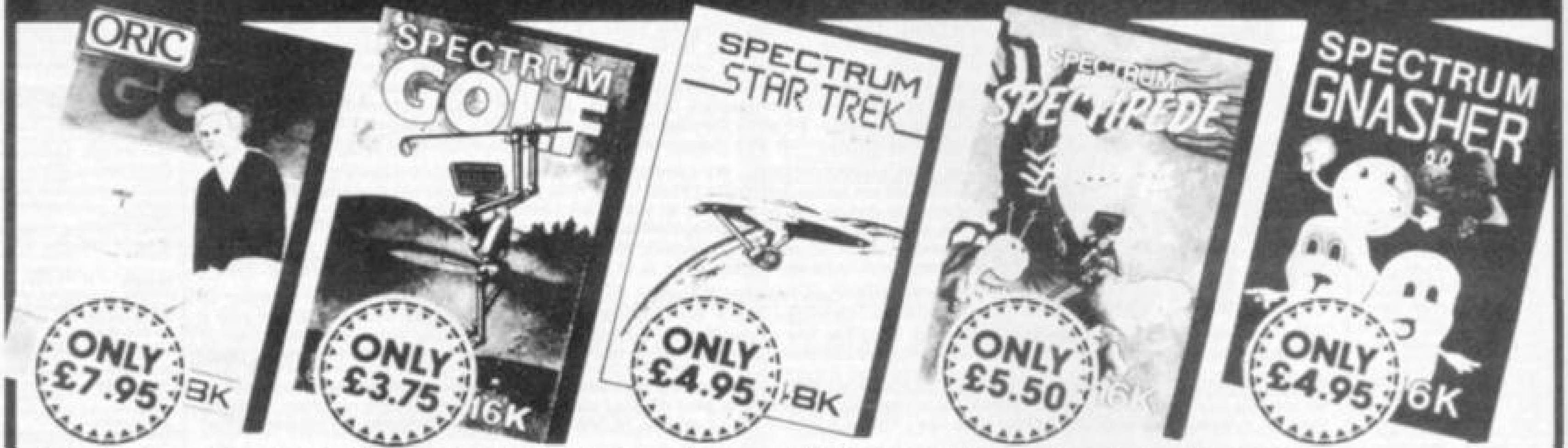

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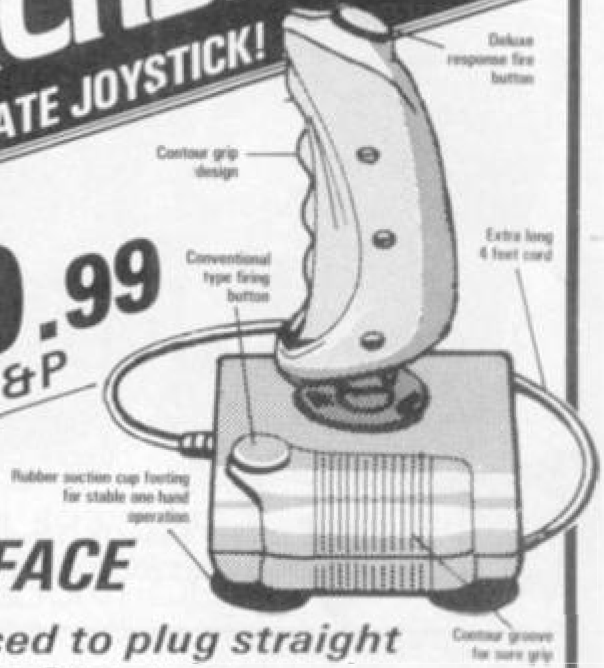
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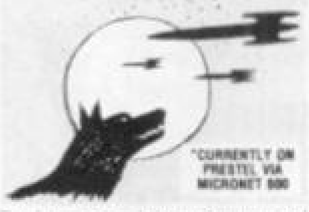
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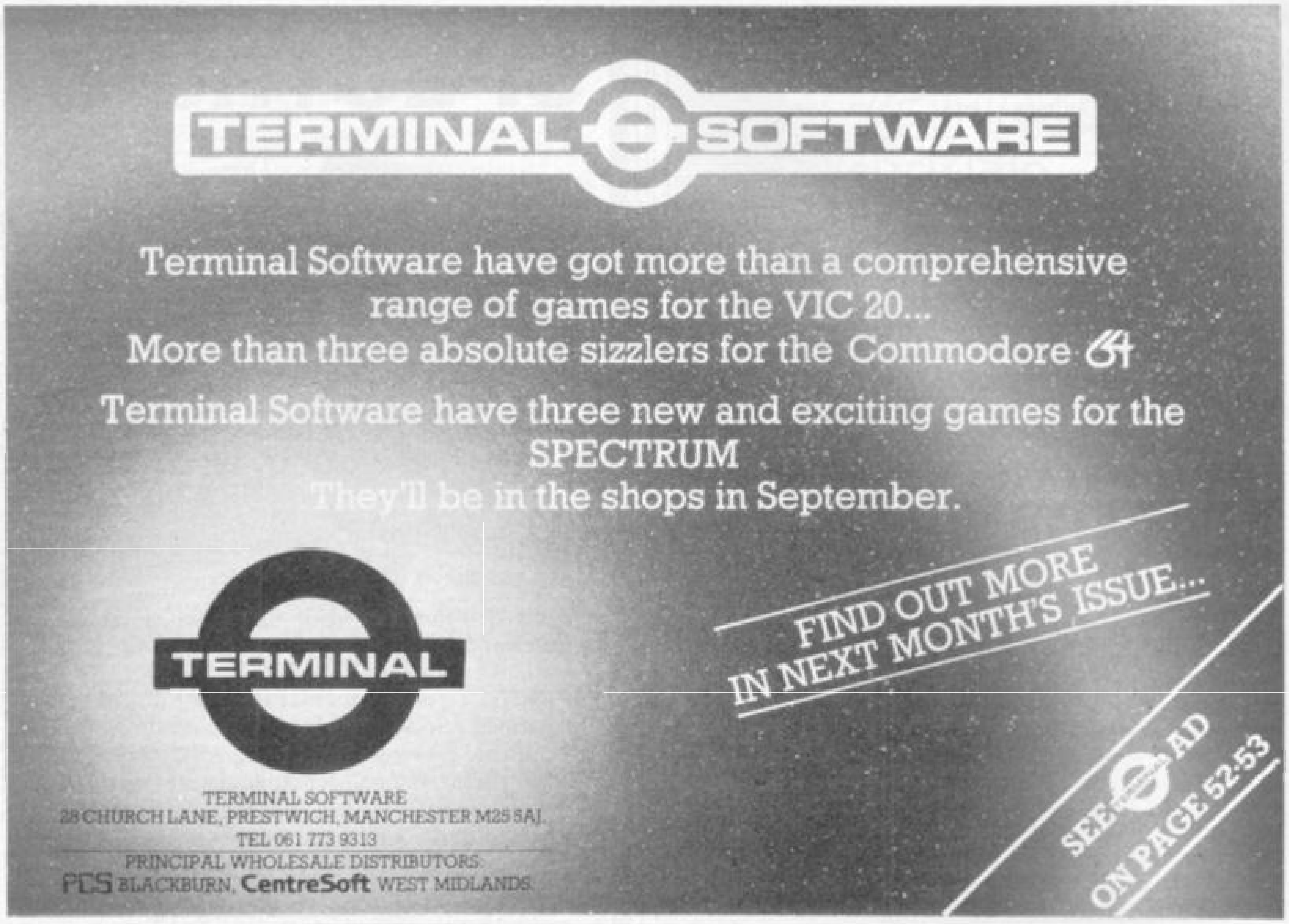
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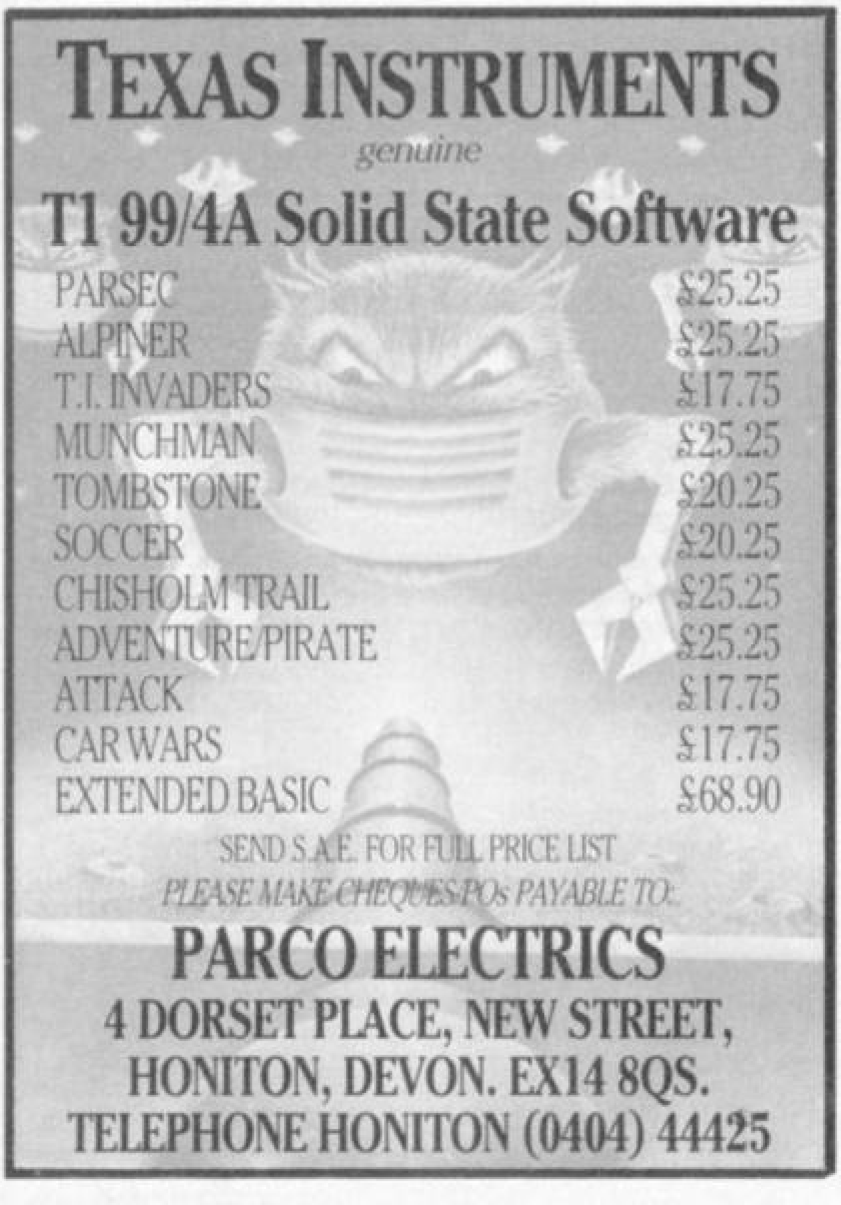
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THE ROUNDSBY INCIDENT

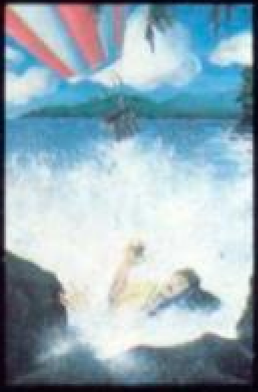
In your time you have done many things for many people. Your blade has seen the service of more than one nation, and been the downfall of many brave opponents.
Now you are in the service of Rambol the Merchant.
Will you be able to discover Roundsby's secret?

ACE IN THE H.O.L.E.

The H.O.L.E. is the code name for the Humane Orbital Legislation Enforcer. It is little more than a place of termination.
Ace Brannigan, you are about to face the hazards of the H.O.L.E. Can you survive long enough to reach the shuttle - craft and freedom?
Will you trigger one of the deadly devices that are set to bring about your demise?

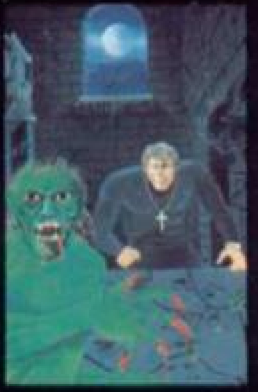
TERROR FROM THE DEEP

At 4.30 on August 18th 1864 a storm hit your ship. Within minutes it had been consigned to the deep. You somehow managed to leap clear of the doomed ship and cling to some floating debris.
Can you find the means to rid the world of this terror from the deep?



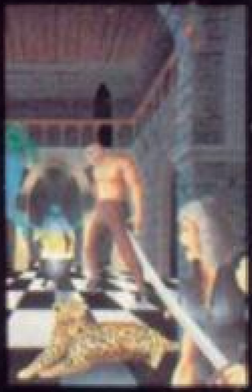
HORROR ATOLL

The day seemed to be absolutely perfect. The two of us floating happily along in our balloon. Not a single cloud in sight. I suppose it lulled us into a false sense of security.
The storm blew up from nowhere and before we knew it, we were fighting for our lives. There was nowhere to land, just the sea below us.
What is the object you can see on the rock in the middle of the lagoon?



ARCANE QUEST

In his job, Colin Grasmere has investigated many strange and baffling phenomena. Hauntings visions, flying saucers, poltergeists, to name but a few. Colin Grasmere is a psychic investigator. Dare you face the beastly one with nothing but a cross and a heart full of purity?



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